GLOBAL RIVALRY & INTELLECTUAL PROPERTY

Developing Canadian Strategies

Edited by Murray G. Smith

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Global Rivalry and Intellectual Property

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POLICY DEBATES

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edited by
Murray G. Smith

Proceedings of a conference co-sponsored by
Consumer and Corporate Affairs Canada and
The Institute for Research on Public Policy
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Foreword

Intellectual property rights may seem at first glance a lifeless subject. Yet that subject lies at the heart of processes vital to social progress and economic development. Few Canadians appreciate how deeply Canada's legislative regime for intellectual property rights and our participation in various international negotiations on intellectual property affect our capacity to foster innovation in the Canadian economy. Intellectual property laws are highly technical, and apparently of direct interest only to specialized groups in the legal and business communities. In public discussion, the subject has largely been condemned to obscurity (with occasional flashes of heated controversy over drug prices or television signals). Yet unrestricted access to knowledge is crucial to research, scholarship, teaching and learning.

In an effort to explore the broader links between intellectual property rights, corporate strategies, research needs, consumer interests and Canadian policy choices, the Institute organized a conference co-sponsored by Consumer and Corporate Affairs Canada. The conference was held in Toronto, April 24-25, 1990, as the Uruguay Round negotiations were entering what was scheduled to be their final stages. This volume, the proceedings of the conference, draws together contributions from a number of prominent Canadians and international specialists from different disciplines and from the private, academic and public sectors.

Amidst the diversity of perspectives expressed by the contributors some common strands emerge. Intellectual property issues are being thrust onto the policy agenda by the rapid pace of technological changes and the globalization of the world economy. New technologies are creating demands for new types of intellectual property rights. At the same time, unilateral efforts by the United States to use its own existing trade legislation to extend the reach of its domestic intellectual property laws, and attempts to negotiate rules for intellectual property rights in the Uruguay Round of GATT negotiations both give an immediacy to efforts to develop common international approaches to the complex issues involved in adapting concepts of intellectual property rights to a new global setting.

The development of effective multilateral rules for the protection of intellectual property rights and dispute settlement processes in GATT negotiations could provide a more benign environment for Canadian consideration of our own policy on intellectual property rights. Even if the outcome of current GATT discussions is inconclusive, however, Canadians must assess carefully the trade-offs and conflicts between producer and consumer interests in designing Canada's intellectual property regime and assuring both access to existing knowledge and incentives for creation of new knowledge. The Institute is pleased to collaborate with the Department of Consumer and Corporate Affairs in this activity because broader public understanding of these issues is important to the development of Canadian policy for intellectual property. And that, in turn, is crucial both to the maintenance of an equitable society and to the creation of a dynamic, innovation-based economy.

Rod Dobell
President
February 1991

Avant-propos

À première vue, il paraît peu probable que la question des droits sur la propriété intellectuelle soit capable de susciter les passions. Pourtant, celle-ci est au coeur d'un ensemble de processus essentiels pour le progrès social et le développement économique. Peu de Canadiens se rendent compte à quel point la législation canadienne relative aux droits sur la propriété intellectuelle ainsi que notre participation à diverses négociations internationales sur le sujet sont à même de jouer un rôle primordial dans la modernisation de l'économie canadienne. Les lois sur la propriété intellectuelle sont extrêmement techniques et, de ce fait, n'intéressent apparemment que certains groupes de spécialistes des milieux juridiques et des affaires. Pour ce qui est de l'intérêt général du grand public, la question est restée relativement méconnue (à l'exception de quelques éclats occasionnels suscités par des controverses passionnées, à propos des prix des médicaments ou des signaux de télévision). Il n'en reste pas moins que l'accès aux connaissances demeure crucial pour la recherche, les travaux d'érudition, l'enseignement et l'apprentissage.

Afin d'explorer d'une manière plus approfondie les rapports qui existent entre les droits sur la propriété intellectuelle, les stratégies des entreprises, les besoins de la recherche, les intérêts des consommateurs et les choix politiques canadiens, l'Institut a organisé un congrès, en collaboration avec Consommation et Corporations Canada. Ce congrès s'est tenu à Toronto les 24 et 25 avril 1990, au moment même où les négociations de l'Uruguay Round entraient dans ce qui devait être leur étape finale. Le présent volume, qui est le fruit des travaux de cette rencontre, regroupe les contributions d'un certain nombre d'éminents spécialistes canadiens et internationaux appartenant à des disciplines diverses des secteurs privé, universitaire et public.

À partir de la multiplicité des points de vue exprimés par les participants, on peut voir se dessiner certaines lignes de force communes. Les questions relatives à la propriété intellectuelle s'imposent irrésistiblement à l'attention des responsables politiques, du fait de la rapidité des changements technologiques et de la globalisation de l'économie au niveau mondial. Les nouvelles technologies engendrent le besoin de nouvelles mesures en matière de droits sur la propriété intellectuelle. Par ailleurs, les efforts entrepris par les États-Unis afin d'étendre unilatéralement, à partir de l'exercice de leur propre législation commerciale, le domaine de compétence de leur législation, et les tentatives de négociation, au cours des rencontres de l'Uruguay Round du GATT, d'une réglementation particulière au sujet de la propriété intellectuelle, rendent urgente l'adoption d'une attitude commune à l'égard des problèmes complexes que suscite l'adaptation des notions de droits sur la propriété intellectuelle à la nouvelle conjoncture de globalisation observée dans le monde.

Si, au cours des négociations du GATT, l'on parvient à mettre au point une réglementation multilatérale efficace pour la protection des droits sur la propriété intellectuelle, ainsi qu'une procédure de règlement des différends, le Canada pourra alors procéder à l'examen de sa propre législation en matière de droits sur la propriété intellectuelle dans un climat plus favorable. Et même si les discussions qui se poursuivent actuellement au GATT n'aboutissent pas à des mesures concrètes, il n'en demeure pas moins que le Canada se devra d'examiner avec soin, lors de l'élaboration du régime de propriété intellectuelle canadien, les compromis et les conflits en jeu entre les intérêts des producteurs et ceux des consommateurs, et de faire en sorte que soient assurés à la fois le libre accès à l'information existante et les conditions nécessaires à l'éclosion d'idées nouvelles. L'Institut est heureux de pouvoir collaborer avec le ministère de la Consommation et des Corporations à la réalisation de ces objectifs car il est important, pour favoriser l'amélioration de la législation canadienne en matière de propriété intellectuelle, que l'opinion publique prennent mieux conscience de ces questions. Et cela, à son tour, est essentiel pour le maintien d'une société équitable et pour la création d'une économie dynamique fondée sur l'innovation.

Rod Dobell
Président
Février 1991

I.

Introduction

Editor's Introduction: Developing Canadian Strategies for Intellectual Property

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Murray G. Smith

Canadians have a vague sense that rapid technological change and international economic developments warrant some type of policy responses to promote research and development and to enhance the technological capabilities of the Canadian economy. Yet few Canadians recognize that Canada's legislative regime for intellectual property rights and our participation in various international negotiations on intellectual property could play a pivotal role in fostering innovation in the Canadian economy. Intellectual property laws are technical and complex. Thus, intellectual property rights, which are of continuing interest only to a specialized group in the legal and business communities, have largely been condemned to obscurity in Canadian policy, apart from occasional flashes of heated controversy over drug prices or television signals.

In an effort to explore the broader links between intellectual property rights, corporate strategies and Canadian policy choices, the Institute organized a conference that was co-sponsored by Consumer and Corporate Affairs Canada. This volume, the proceedings of the conference, brings together contributions from a number of prominent Canadians and international specialists, drawn from different disciplines, and from the private, academic and public sectors. Amid the diversity of perspectives, some common strands emerge.

One theme is that intellectual property issues are being thrust onto the policy agenda by the rapid pace of technological change and the globalization of the world economy. New technologies require new types of intellectual property rights and mounting global competition makes IPRs much more significant in shaping corporate strategies. Another theme is that technology and science policies have become the locus of rivalry among governments as well as corporations. Governments are also acting to extend the reach of their intellectual property laws. The U.S.T.R. is expected to be the sheriff bringing law and order to intellectual property the way U.S. Federal Marshalls stopped claim-jumping in the lawless Frontier of the American West. Unilateral pressures from the United States upon countries, to strengthen their intellectual property laws, can only be contained by effective international rules.[1] Efforts to negotiate rules for intellectual property rights in the Uruguay Round of the General Agreement on Tariffs on Trade (GATT), give an immediacy to efforts to develop common international approaches to the complex issues that are involved in adapting intellectual property rights. Since there are two excellent rapporteurs' reports, this Introduction will highlight briefly some of the key points made by the contributors.

The Honourable Flora MacDonald observes that since intellectual property issues, such as pharmaceutical patent protection and copyright revision, have been controversial in Canada, it is understandable that these issues will be controversial in the GATT, in light of the diversity of nations participating in those negotiations. The Honourable Pierre Blais, Minister of Consumer and Corporate Affairs, stresses that companies need to make better use of the wealth of information concerning technology, which is available from patent filings around the world, in order to make Canadian research and development more effective. Mr. Blais concludes that public policy in these areas should "respond to the needs of both those who rely upon intellectual property to protect their innovation and those who turn to intellectual property as a means of obtaining new ideas." He recognizes that striking the appropriate balance between producers and users is often difficult, particularly when rapid technological innovation is occurring.

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[1] The United States has two trade remedies for intellectual property violations. Section 337 of the *Tariff Act* of 1930, as amended by the *Omnibus Trade and Competitiveness Act* of 1988, provides for seizure of imports under U.S.A. intellectual property laws. Section 301 of the *Trade Act* of 1974 was amended by the *Omnibus Trade and Competitiveness Act* of 1990 to provide for trade retaliation against countries who provide inadequate protection of intellectual property rights.

Robert Ferchat, of Northern Telecom, notes that the rapid pace of technological innovation means that companies are like Alice in Wonderland peering through the looking glass—within a decade they will be competing in a vastly different world than the one they are familiar with today. This theme is developed by Geraldine Kenney-Wallace, of the Science Council of Canada, who observes that the time scale of innovation is accelerating. She describes the emerging global network of fibre-optics transmission cables as the trade routes of the 1990s and advises companies to "innovate not litigate." Bunroku Yoshino, of the Institute for International Economic Studies, Japan, notes that Japan had evolved from an importer of technology 30 years ago to a technology exporter now because of substantial investment in research and development by Japanese corporations.

Sylvia Ostry, of the Centre for International Studies, expresses concern about mounting tensions among industrial countries, because rivalry in the development of innovation capabilities is leading to frictions in leading-edge industries that are technology intensive. Geza Feketekuty, of the Office of the United States Trade Representative, indicates that negotiation of an international set of rules on trade-related intellectual property (TRIPS) and services issues is critical to the successful conclusion of the Uruguay Round of GATT negotiations.

Several contributors express the view that Canadian businesses were not utilizing intellectual property rights effectively as part of an overall strategy for innovation. Roch Brisson, of Centre de Recherche Industrielle du Québec, urges small and medium-sized enterprises to utilize intellectual property rights as part of their business strategy, while Douglas James, of Lumonics, describes the critical role of developing, and implementing, a corporate patent policy in an industry that is technology intensive. George Fisk, of Gowling, Strathy & Henderson, suggests ways companies can reduce the hazard of being subject to intellectual property litigation and can obtain greater benefits from the utilization of intellectual property rights.

In the discussion of policy issues, Howard Wetston, of the Competition Bureau, highlight the pro-competitive aspects of intellectual property rights and their licensing, and then raises the question of whether specific competition policy guidelines for intellectual property rights should be developed. Graeme Hughes, of the Information Technology Association of Canada, raises the question of where the boundary line ought to be drawn in defining the extent of copyright protection for computer software.

Keith Maskus, of the University of Colorado, analyzes the economic trade-offs in designing intellectual property rights, particularly in light of international differences in technological capabilities. My own paper argues that Canadian policies for intellectual property rights have to be formulated in the context of overall policies to foster innovation and to promote investment.

Diverse perspectives are expressed on the negotiating issues involved in developing intellectual property rules in the Uruguay Round of GATT negotiations: Gilles Bertin of the University of Paris describes recent efforts to develop a common European intellectual property rights regime. Although Bertin regards a multilateral regime to be desirable, he cautions that it may be difficult to achieve. Charles Levy, Counsel to the United States Intellectual Property Committee, indicates that the United States would have great difficulty implementing changes in its Section 337 procedure, which were the subject of a recent GATT panel finding, if an agreement on TRIPS could not be negotiated. However, Levy was optimistic that a TRIPS agreement would be achieved and that the United States would then alter its law in accordance with the GATT finding. Carlos Braga, of the University of Sao Paulo, Brazil, expressed concern about the impact on developing countries of the TRIPS agreement, in areas such as pharmaceuticals, because of the impact on consumer prices, but noted that there was some willingness on the part of developing countries to make some commitments in these areas in order to stimulate the development of treatments for tropical diseases and to promote investment in their domestic economies. David Watters, of Consumer and Corporate Affairs Canada, cautions there is a wide range of possible outcomes to the TRIPS negotiations, both in terms of the number of countries willing to participate and the precision of the rules.

Gordon Henderson, of Gowling, Strathy & Henderson, and Hans Smit, of Columbia University, express the view that private, arbitral processes may be more useful than the courts in resolving some intellectual property rights issues. Joseph Greenwald, former Assistant Secretary for International Economic Affairs in the United States, notes that proponents of a TRIPS agreement wanted to bring TRIPS into the GATT in order to have a more effective dispute-settlement mechanism, but he thought many countries (including most developing countries) would first require greater clarity on whether violation of the intellectual property rules would open them to retaliation on merchandise exports. It is Mr. Greenwald's view that these issues need to be resolved before the Uruguay Round can be concluded. The Canadian government had addressed these issues in its proposal for a World Trade Organization.[2]

In his rapporteur's report, Richard Lipsey, of the Canadian Institute for Advanced Research, echoes the conference theme that globalization and technological change are changing the boundaries of intellectual property rights in ways that are difficult to predict or to manage. Although it may be difficult to document direct links between intellectual property rights and investment in innovation, Dr. Lipsey concludes that the adaptation of intellectual property rights regimes could be a significant catalyst to economic growth. Similarly, Morris Rosenberg, of Consumer and Corporate Affairs Canada, stresses the need for smaller players like Canada to develop multilateral rules and procedures in order to contain unilateral actions under U.S.A. trade law. Quite independent of international negotiations, however, Mr. Rosenberg indicates that Canada will need to continue the domestic process of modernizing the intellectual property rights regime to deal with new fields such as biotechnology.

The immediate evolution of the international agenda for Intellectual Property protection will be influenced by the outcome of the Uruguay Round. As Charles Levy indicates in this volume, some developing countries such as Mexico are increasing their protection for intellectual property in order to attract international investment. This shift in the attitudes of policy makers in developing countries is confirmed by Carlos Braga from Brazil. Although developing countries are changing their attitude toward protection of intellectual property, the participation of many developing countries in international rules and minimum standards for intellectual property is explicitly linked to other negotiating issues in the Uruguay Round. For economies such as Argentina and Brazil, which depend heavily upon income from agricultural exports, real progress must be achieved in the efforts to develop better rules for agricultural trade which will expand

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[2] Statement by The Honourable John Crosbie, Geneva, April 11, 1990, and John Crosbie, "My Plan for a World Trade Organization," *International Economy*, June-July 1990, pp. 40-7.

and secure their export markets if they are to agree to new rules for intellectual property protection. The Latin American countries have stated clearly that a successful outcome in the agricultural negotiations is critical to their decision about whether to participate in the new proposed rules for protection of intellectual property.

Whatever the outcome of the Uruguay Round, intellectual property issues are going to remain high on the international agenda. If the Uruguay Round succeeds, then new rules for intellectual property will be one of the central elements of a successful negotiation. If the Uruguay Round fails, however, then intellectual property issues will remain prominent on the international stage, but the main focus of intergovernmental action will be unilateral actions by the United States and the other industrial countries. Such unilateral actions under the U.S. trade laws will create ongoing frictions between governments and create uncertainty for the private sector in the industrial and developing economies.

Canada's present situation and our overall position on the protection of intellectual properties is very different from that of many developing countries, but some of the same pressures and challenges will confront Canada if the Uruguay Round remains blocked. If there is no agreed international approach emerging from the GATT negotiations, then Canada will still need to review and revise continually its intellectual property regime as an important component of framework legislation which affects the climate for investment and innovation in the Canadian economy. At the same time, Canada could face continuing difficulties in its international trade and investment relations, because of trade frictions associated with international differences in the standards and procedures for protection of intellectual property. For example, with no Uruguay Round deal, the United States will retain its Special 301 procedures regarding the intellectual property rules promulgated by governments. And the United States also will likely retain the Section 337 procedure in its import relief laws which permits foreign goods to be seized on the basis of allegations that U.S. intellectual property rights are infringed.

The future agenda for the evolution of intellectual property rights in Canada will be shaped by international developments, including the outcome of the Uruguay Round of GATT negotiations. Unless Canada becomes subject to escalating trade disputes over intellectual property rights, however, these issues are unlikely to attract sustained public attention in Canada. Yet incremental decisions about Canada's intellectual property regime could play a significant role in influencing the technological dynamism of, and economic growth prospects for, the Canadian economy.

Introduction de l'éditeur : élaboration de stratégies canadiennes en matière de propriété intellectuelle

Murray G. Smith

Les Canadiens ont la vague impression que la rapidité de l'évolution technologique et les progrès économiques à l'échelle internationale requièrent l'adoption de mesures politiques appropriées, afin de promouvoir la recherche et le développement et de renforcer les capacités technologiques de l'économie canadienne. Pourtant, peu de Canadiens se rendent compte que la législation canadienne relative aux droits sur la propriété intellectuelle, ainsi que notre participation à diverses négociations internationales sur le sujet, pourraient jouer un rôle essentiel dans le renouvellement de l'économie canadienne. Les lois sur la propriété intellectuelle sont techniques et complexes. Aussi les droits sur la propriété intellectuelle, qui n'intéressent d'une façon permanente qu'un nombre restreint de spécialistes des milieux juridiques ou des affaires, sont en grande partie condamnés à rester obscurs, en dehors de quelques éclats occasionnels suscités par des controverses passionnées, telles que celles sur les prix des médicaments ou sur les signaux de télévision.

Afin d'explorer d'une manière plus approfondie les rapports qui existent entre les droits sur la propriété intellectuelle, les stratégies des entreprises et les mesures politiques adoptées par le Canada, l'Institut a organisé un congrès, en collaboration avec

Consommation et Corporations Canada. Le présent volume, qui est le fruit des travaux de cette rencontre, regroupe les contributions d'un certain nombre d'éminents spécialistes canadiens et internationaux appartenant à des disciplines diverses des secteurs privé, universitaire et public. À partir de la diversité des points de vue exprimés, on peut voir se dessiner quelques lignes de force communes.

L'un des thèmes de la discussion s'appuie sur le fait que les questions de propriété intellectuelle s'imposent à l'attention des responsables politiques du fait de la rapidité des changements technologiques et de la globalisation de l'économie au niveau mondial. Les nouvelles technologies créent le besoin de nouvelles mesures en matière de droits sur la propriété intellectuelle, et lorsqu'il s'agit d'élaborer des stratégies pour les entreprises, la concurrence accrue qui s'observe sur le plan international rend ces nouvelles dispositions d'autant plus urgentes. Un autre thème abordé part de l'observation que les politiques relatives à la technologie et à la science sont devenues un sujet d'affrontement privilégié au sein des gouvernements et des entreprises. Par ailleurs, les gouvernements s'efforcent d'accroître la portée de leur législation sur la propriété intellectuelle. Le Représentant au commerce des États-Unis, par exemple, est censé jouer le rôle du shérif redresseur de torts dans le domaine de la propriété intellectuelle, un peu comme les "federal marshalls" de l'Ouest américain des temps héroïques, qui étaient chargés de protéger les biens des bons citoyens. Ce n'est qu'en instituant une réglementation efficace qu'on pourra résister aux pressions unilatérales exercées par les États-Unis, à l'égard des autres pays, dans le but de renforcer leurs lois sur la propriété intellectuelle.[1] Les efforts de négociation entrepris dans le cadre de l'Uruguay Round du GATT au sujet des droits sur la propriété intellectuelle révèlent qu'il devient urgent de se mettre d'accord sur des moyens d'action communs, au niveau international, si l'on veut trouver une solution aux problèmes complexes suscités par les droits sur la propriété intellectuelle. Étant donné que le présent volume contient les excellents comptes rendus de deux rapporteurs, il suffira, dans cette introduction, de mentionner certains des points principaux présentés par les intervenants.

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[1] Les États-Unis possèdent deux armes commerciales pour se protéger contre les infractions relatives à la propriété intellectuelle. L'article 337 du *Tariff Act* de 1930, amendé par l'*Omnibus Trade and Competitiveness Act* de 1988, prévoit la saisie des produits importés en contravention à la législation américaine sur la propriété intellectuelle. L'article 301 du *Trade Act* de 1974, amendé par l'*Omnibus Trade and Competitiveness Act* de 1990, prévoit des mesures de représailles commerciales contre les pays qui ne protègent pas les droits sur la propriété intellectuelle d'une façon adéquate.

L'Honorable Flora MacDonald fait remarquer que les problèmes de propriété intellectuelle, tels que les patentes des produits pharmaceutiques et la réforme des droits d'auteurs, étant des questions controversées au Canada, il n'est pas étonnant qu'elles le soient aussi dans les négociations du GATT, du fait de la diversité des pays qui y participent. L'Honorable Pierre Blais, ministre de Consommation et Corporations Canada, déclare de son côté que les entreprises devraient faire un meilleur usage de la richesse d'information technologique que représentent les patentes déposées dans les divers pays du monde, afin d'améliorer la recherche et le développement au Canada. Il lui semble que la politique canadienne dans ce domaine devrait chercher à satisfaire "à la fois ceux qui ont besoin de la propriété intellectuelle pour protéger leurs inventions et ceux qui se tournent vers elle pour acquérir de nouvelles idées". Toutefois, ajoute-t-il, en ce domaine, il est difficile de trouver un juste équilibre, surtout du fait de la rapidité de l'évolution technologique.

Robert Ferchat, de Northern Telecom, fait remarquer que la rapidité de l'évolution technologique en cours rend les compagnies semblables à Alice au pays des merveilles s'efforçant de distinguer ce qui se passe de l'autre côté du miroir; d'ici une décennie, déclare-t-il, ces mêmes compagnies auront à se défendre dans un contexte entièrement différent de celui auquel elles sont accoutumées aujourd'hui. C'est le thème que choisit de développer Geraldine Kenney-Wallace, du Conseil des sciences du Canada, pour qui le rythme de l'innovation va en s'accélérant. Elle pense que le réseau global des câbles de transmission en fibres optiques en cours de constitution va devenir le système de communication commerciale des années 90, et elle conseille aux entreprises "d'innover plutôt que de contester". Bunroku Yoshino, de l'Institut d'études économiques internationales du Japon, fait observer que le Japon est passé, en 30 ans, du stade d'importateur de technologie à celui d'exportateur, grâce aux investissements considérables effectués par l'industrie de son pays dans le domaine de la recherche et du développement.

Sylvia Ostry, du Centre d'études internationales, exprime ses inquiétudes devant la montée des tensions entre pays industriels, du fait que les rivalités dans le domaine du développement des capacités d'innovation conduisent à des frictions entre les industries à la pointe du progrès, où la technologie tient une place primordiale. Geza Feketekuty, du Bureau du Représentant au commerce des États-Unis, indique que la négociation d'une réglementation internationale portant sur la propriété intellectuelle ayant des rapports avec le commerce et les services s'avère essentielle pour la réussite des négociations de l'Uruguay Round du GATT.

Plusieurs intervenants expriment l'opinion que les entreprises canadiennes ne se prévalent pas efficacement des droits sur la propriété intellectuelle, dans l'élaboration de leurs stratégies globales d'innovation. Roch Brisson, du Centre de Recherche Industrielle du Québec, exhorte les PME à inclure les droits sur la propriété intellectuelle dans leur stratégie d'affaires, tandis que Douglas James, de Lumonics, donne des précisions sur le rôle délicat qu'entraînent la conception et la mise en oeuvre d'une politique concernant les patentes de l'entreprise, dans une industrie où la technologie tient une place prépondérante. George Fisk, de Gowling, Strathy & Henderson, propose aux entreprises des moyens qui leur permettront de réduire les risques de procès en matière de propriété intellectuelle et qui leur donneront la possibilité de tirer un meilleur parti des droits sur la propriété intellectuelle.

À l'occasion de la discussion des questions de politique, Howard Wetston, du Bureau de la concurrence, souligne les aspects en faveur de la concurrence, relativement aux droits sur la propriété intellectuelle et sur les brevets qui les protègent; il se demande s'il serait approprié d'élaborer des règles de conduite en matière de concurrence, en ce qui concerne ces droits. Graeme Hughes, de l'Association des technologies de l'information du Canada, se demande où l'on devrait fixer la limite des droits d'auteurs applicables aux logiciels.

Keith Maskus, de l'Université du Colorado, analyse les compromis économiques que requiert l'élaboration des droits sur la propriété intellectuelle, notamment dans la perspective des différences qui existent au niveau international en matière de capacité technologique. Ma propre contribution vise à démontrer que les mesures politiques canadiennes concernant les droits sur la propriété intellectuelle doivent être élaborées en fonction d'un cadre politique plus général destiné à favoriser l'esprit d'innovation et à promouvoir les investissements.

Sur les problèmes qu'entraînent les négociations de l'Uruguay Round du GATT, divers points de vue ont été exprimés relativement aux questions qui intéressent les droits sur la propriété intellectuelle. Gilles Bertin, de l'Université de Paris, parle des récents efforts entrepris en Europe pour mettre au point un régime commun concernant les droits sur la propriété intellectuelle. Quoique M. Bertin soit partisan d'un régime multilatéral, il met toutefois en garde contre les difficultés que présente sa réalisation. Charles Levy, conseiller juridique auprès du Comité américain sur la propriété intellectuelle, indique que les États-Unis auront beaucoup de difficultés à effectuer, dans la procédure de l'article 337, les changements qui ont fait l'objet d'une conclusion d'un groupe d'experts du GATT, si une entente sur la propriété intellectuelle ayant des rapports avec le commerce et les services ne parvient pas à être négociée. M. Levy pense cependant qu'une telle entente est possible et que les États-Unis pourront alors modifier leur législation en conséquence. Carlos Braga, de l'Université de Sao Paulo, au Brésil, se dit préoccupé par les conséquences que l'entente sur la propriété intellectuelle ayant des rapports avec le commerce et les services pourrait avoir sur les pays en voie de développement, dans des domaines tels que celui des produits pharmaceutiques, à cause des effets sur les prix à la consommation. Il a pourtant relevé une certaine bonne volonté de la part des pays en voie de développement, qui semblent prêts à s'engager jusqu'à un certain point dans ces domaines afin de stimuler la mise au point de traitements pour les maladies tropicales et de promouvoir les investissements dans leur économie domestique. David Watters, de Consommation et Corporations Canada, nous avertit que les négociations sur la propriété intellectuelle ayant des rapports avec le commerce et les services peuvent aboutir à des résultats très divers, tant du point de vue du nombre de pays qui voudront y participer que de celui des termes de la réglementation.

Gordon Henderson, de Gowling, Strathy & Henderson, et Hans Smit, de l'Université Columbia, sont d'avis que pour certaines catégories de droits sur la propriété intellectuelle, la procédure arbitrale privée peut se révéler plus utile que le recours aux tribunaux. Joseph Greenwald, ancien secrétaire adjoint aux Affaires économiques internationales aux États-Unis, fait remarquer que ceux qui sont en faveur d'un accord sur la propriété intellectuelle ayant des rapports avec le commerce et les services étaient d'avis d'inclure un tel accord dans les négociations du GATT, car ils voyaient dans ce mécanisme un moyen plus efficace de règlement des différends. Il lui semble toutefois que de nombreux pays (y compris la plupart des pays en voie de développement) auront besoin de savoir d'une manière plus précise si les infractions aux règles sur la propriété intellectuelle entraîneront pour eux le risque de s'exposer à des représailles sur les marchandises qu'ils exportent. M. Greenwald, quant à lui, pense que ce point doit être éclairci avant que l'Uruguay Round puisse se conclure. Le gouvernement canadien, pour sa part, s'est occupé des problèmes que soulève ce point dans sa proposition relative à l'organisation du commerce mondial.[2]

Dans son rapport, le rapporteur Richard Lipsey, de l'Institut canadien de recherche avancée, reprend le thème de la rencontre, à savoir que les changements qui surviennent dans la globalisation et l'évolution technologique sont en train de modifier les limites des droits sur la propriété intellectuelle d'une manière difficile à prévoir ou à contrôler. Bien qu'il soit peu facile d'établir des rapports directs entre ces droits et l'investissement en matière d'innovation, le Dr. Lipsey est néanmoins d'avis que la réforme des régimes de droits sur la propriété intellectuelle pourrait aider d'une façon notable à accélérer la croissance économique. Morris Rosenberg, de Consommation et Corporations Canada, insiste également sur la nécessité, pour les pays moyens comme le Canada, d'élaborer des règles et procédures multilatérales susceptibles de s'opposer avec succès aux mesures unilatérales prises dans le cadre de la législation commerciale américaine. Outre la question des négociations internationales, M. Rosenberg estime que, sur le plan domestique, le Canada devra poursuivre l'effort de modernisation du régime des droits sur la propriété intellectuelle, afin de l'adapter aux nouveaux domaines qui voient le jour, comme par exemple celui de la biotechnologie.

Dans l'immédiat, le calendrier de travail international relatif à la protection de la propriété intellectuelle ne manquera pas d'être influencé par les résultats de l'Uruguay Round. Comme le fait remarquer Charles Levy dans le présent volume, certains pays en voie de développement, tel le Mexique, cherchent de plus en plus à renforcer leurs mesures de protection de la propriété intellectuelle, dans l'espoir d'attirer les investissements internationaux. Ce changement d'attitude de la part des législateurs de ces pays est confirmé par le Brésilien Carlo Braga. Malgré ce fait, beaucoup de pays en voie de développement insistent pour que leur ralliement aux diverses réglementations internationales et à

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2. Déclaration de l'Honorable John Crosbie, Genève, 11 avril 1990. Également, John Crosbie, "My Plan for a World Trade Organization" (Mon plan pour une organisation commerciale mondiale), *International Economy*, juin-juillet 1990, pp. 40-47.

l'application d'un minimum de mesures visant à la protection de la propriété intellectuelle soit explicitement lié aux autres questions à l'ordre du jour de l'Uruguay Round. Pour des économies comme celles de l'Argentine et du Brésil, qui dépendent avant tout de l'exportation de leurs produits agricoles, il n'est pas question d'accepter une nouvelle réglementation sur la propriété intellectuelle sans que des progrès ne soient d'abord enregistrés dans le secteur du commerce agricole, car c'est seulement à cette condition qu'ils seront capables de développer et d'affermir les marchés d'exportation qui leur sont nécessaires. Les pays d'Amérique latine ont déclaré sans ambiguïté que leur adhésion à la nouvelle réglementation proposée en matière de protection de la propriété intellectuelle serait avant tout fonction de la réussite des négociations sur le commerce des produits agricoles.

Quel que soit l'aboutissement de l'Uruguay Round, les problèmes de propriété intellectuelle resteront parmi les questions figurant à l'ordre du jour des instances internationales. En cas de succès de l'Uruguay Round, une nouvelle réglementation sur la propriété intellectuelle deviendra l'un des facteurs essentiels pour des négociations réussies. En cas d'échec, les questions relatives à la propriété intellectuelle n'en demeureront pas moins au premier plan des préoccupations internationales, mais l'action intergouvernementale en ce domaine sera principalement représentée par les mesures unilatérales adoptées par les États-Unis et les autres pays industrialisés. De telles mesures, prises dans le cadre de la législation commerciale américaine, donneront lieu à des frictions continuelles entre les gouvernements et provoqueront de l'incertitude, aussi bien dans le secteur privé des pays industrialisés que dans celui des pays en voie de développement.

La conjoncture canadienne actuelle, de même que notre attitude à l'égard de la protection intellectuelle, diffèrent notablement de ce que l'on peut constater dans beaucoup de pays en voie de développement. Cela n'empêche pas que le Canada devra en partie faire face aux mêmes pressions et aux mêmes défis, si les négociations de l'Uruguay Round en demeurent au point mort. Dans ce cas, le Canada sera amené à examiner et à réviser continuellement son régime de propriété intellectuelle, en tant que celui-ci constitue un des éléments essentiels des lois-cadres affectant les investissements et l'innovation nécessaires à l'économie canadienne. Notre pays pourrait par ailleurs se retrouver devant des difficultés sans fin, dans le domaine des échanges et des investissements internationaux, du fait des frictions que ne manqueraient pas de causer les diverses procédures et normes en vigueur dans les autres pays, relativement à la protection de la propriété intellectuelle. Par exemple, sans accord au niveau de l'Uruguay Round, les États-Unis maintiendront la procédure spéciale prévue par l'Article 301 de leur *Trade Act* vis-à-vis des réglementations adoptées par les autres gouvernements en matière de propriété intellectuelle. En ce qui concerne les mesures de protection à l'importation, il est aussi probable que les États-Unis conserveront l'Article 337, qui prévoit la saisie des marchandises dans les cas où il est allégué que les droits américains sur la propriété intellectuelle ont été violés.

Le futur programme de travail, en ce qui a trait à l'évolution des droits sur la propriété intellectuelle au Canada, sera fonction des résultats obtenus au niveau international, y compris ceux des négociations de l'Uruguay Round du GATT. Certes, les questions relatives à ces droits ont peu de chance de retenir l'attention du public canadien, à moins que le Canada ne soit entraîné dans des litiges de plus en plus nombreux en ce domaine. Il reste, toutefois, que des mesures qui viseraient à améliorer le régime de propriété intellectuelle du Canada pourraient jouer un rôle important en favorisant le dynamisme technologique et les chances de croissance de l'économie canadienne.

II.

Global Rivalry in Innovation and High Technology

Global Rivalry in Innovation and High Technology

Robert A. Ferchat

As Jake Warren has said, we are here today to talk about global rivalry in innovation and high technology. I propose to talk about hedgehogs and flamingos.

There is a connection. The linkage occurred to me when I reentered the world of children's books through the eyes of my grandchildren—in particular when I rediscovered Alice as she followed the White Rabbit down the hole in Wonderland, or crossed to the other side of the looking glass. In those strange—and frightening—fictional worlds, the rules Alice had used to manage her life were all changed. Her paradigm was turned upside down and inside out.

Creatures like the Cheshire Cat appeared and disappeared with no regard to any laws of physics that Alice had ever encountered. The tea party—that icon of British cultural conventionality—lurched from surprise to surprise under the manic guidance of the Mad Hatter. In the croquet game with the Queen of Hearts, the mallets were flamingos with minds of their own. And the balls were hedgehogs that kept unrolling at exactly the worst moments. And all the players played at once. No one waited his turn. Sound familiar? It seems to me that we live in such a Wonderland, in a time when the rules are changing even as we play the game.

Globalization means nothing more than everyone playing the game at once—and no one is waiting for his turn.

In geopolitics we are privileged to be witnessing fundamental changes that are rewriting the rule books in Eastern Europe and South Africa. In business and, in particular, in telecommunications the list of competitors changes almost every day. Corporate restructuring and mergers and acquisitions are making it tough even to tell who the players are. And the ongoing, ever-faster advance of technology is changing the very tools of the game, even as we line up our shots. We are finding out for ourselves exactly how Alice felt when the flamingo moved in her hands, when the hedgehogs scuttled away.

We are finding out that we cannot make predictions about the future based on the evidence of the past—the rules are changing. We are finding out that we must build systems that are flexible and adaptable, that we must balance our desire for order with an even more fundamental need for opportunity. That is the context within which we must address the issues of intellectual property (IP) in a global environment.

The essence of business—any business—is to create value for the customer. In this Wonderland of ours, we are seeing that the locus of that value has shifted, and dramatically so, over the last 10 to 20 years. Throughout the 1970s and 1980s, much of the value-added that customers purchased was in the goods. Today, and into the 1990s, the value balance has shifted to services. Many successful older companies have gone through significant change as a result—change that goes much deeper than restructuring. More than that, entire new companies and whole new industries have emerged, driven in whole or in large part by the stunning new technologies we have at our command.

Look at banking: now a 24-hour-a-day business, with trillions of dollars zipping around the world daily on telecommunications networks. Look at manufacturing: just-in-time inventory, robotics, computer-integrated manufacturing (CIM), computer-assisted design/computer-assisted manufacturing (CAD/CAM), total quality control (TQC) and on and on. Look at telecommunications: the message-carrying capacity of fibre optic systems is doubling every 18 to 24 months.

What does that mean? At today's modem speeds, it would take 19 centuries to transmit the entire contents of the National Library in Ottawa to anywhere else in the world. By the turn of the century, you will be able to do it in minutes. The hedgehogs are unravelling. The flamingos are swivelling their heads. The point is: all of this advance is a result of intellect creating value out of thin air.

Within the context of this conference, there are two major ramifications of such a Wonderland age. First, as the locus of value has shifted toward intellectually based services and products that are knowledge-intensive, it has also moved ahead of the rules to govern its creation. And second, we cannot run the future based on the empirical evidence of the past because, if we have learned anything, it is that tomorrow's locus of value has not yet been perceived. Therefore, we must build a predictable regime that is flexible, adaptable and balanced, and that fits an environment in which change equals stability.

On the first point, it is clear we have good, solid international rules for dealing with ownership of tangible property. Those rules enable people to predict outcomes and, therefore, to build strategies and promote growth based on a sense of shared expectations. Such a climate does not exist in the realm of intellectual property. Most new initiatives in research and development will be synergistic on an international level. The technologies are so complex, the market forces so differentiated, businesses so far-flung that no one country or company can go it alone, independent of progress made by others. Think of the new transnational relationships in the auto industry (CAMI, Ford/Jaguar), or in telecommunications (Siemens/Rolm or Siemens/GEC/Plessy). Think, too, of transindustrial relationships (Daimler-Benz and Messerschmidt)—together for a while, but, like married couples, respectful of each other's contribution to the whole.

At this point, there exist only the beginnings of international rules of engagement for such value creation. In such an environment, the need for more stability, more predictability, is great and growing daily as we push further into the Information Age. Nations, developed and developing, are rushing to transform their economies into societies that are information-intensive. Corporations, too, are rushing to transform themselves into global businesses with dispersed manufacturing, marketing, financing and customer servicing. Like the white rabbit, we are in mortal fear of being late for the global tea party.

In an ideal world, authors, artists and innovators would all have paternity rights to the children of their invention. Nations, corporations and individuals would openly and freely respect the intellectual ownership rights of others. But we are not in Alice's meadow. We have gone through the looking glass into a world that is no less real for all of its unpredictability. There is economic pressure, maybe not to condone piracy of intellectual property, but to turn a blind eye. What's more, information technology itself makes piracy of IP, such as software and databases, relatively easy. In the world of the hacker, it is even fun. Therein lies the challenge: to provide a carrot to those who truly respect the intellectual value-added of others and who provide adequate compensation for enjoying the benefits of such creativity, and, at the same time, to find the right-sized stick to minimize the activity of the pirates.

This challenge is of particular concern to Canada, which is, and will likely remain, a technology-importing country in the medium term at least. One of the main challenges for Canada in the 1990s is to take advantage of entrepreneurial development of new technologies, wherever they are developed. Let me hasten to say that for itself, Canada has created and maintained a high, global standard in the field of intellectual property, both in terms of recognition of the rights of scientists and creators, and in enforcing the rules that do exist. In fact, this country's set of IP standards, which ranks with the highest in the world, is one of the reasons for the success of Canada's high-technology sector. But, like Alice, we have followed the white rabbit down his hole; we have crossed to the other side of the looking glass. Technological developments are not uniform, in location or pace. There is comparative advantage and, because of that, nations and individuals see gains to be made in bypassing payment for access to intellectual property.

The last frontier of global markets is made up of a pastiche of countries—newly industrialized countries in Asia, for instance, and the free-market nestlings of Eastern Europe. What we face there is the reality, especially in high-technology fields, that many of these places have less than adequate intellectual property protection (IPP) and enforcement. It's a reality that creates some very disturbing situations. For instance, last July, in Hong Kong, IBM found itself in the position of having to organize a raid on a warehouse full of pirated personal computer (PC) and keyboard clones, in order to stop the shipment from leaving the country. The company felt it would not obtain redress via the usual channels, even though the proper laws were in place. Imagine, as a responsible corporate citizen, asking your employees to go out on a limb with an ambush like that.

We have been looking for creative ways of ensuring enforcement in the GATT negotiations. I do not for a moment believe that will be easy. I learned recently of a businessman who found himself in a remote and primitive mountain village in Pakistan, near the Afghan border. He was surprised when he went into one small building to see shelves full of packaged software, obviously ready for sale. But he was flabbergasted when he walked into the back room, where half a dozen local people were keeping a table full of PCs humming away copying programs. You know as well as I, that in competition any player who doesn't respect the rules can gain unfair advantage. The stakes are high. In an era when individuals can make fortunes from a good idea—think of Steven Jobs[1]—the temptation for piracy is stronger than ever before.

I am not arguing for tight controls. Over-protection is just as damaging to the flow of ideas across borders as is a lack of controls. I am arguing for an international model based on Canada, which has always taken a balanced view of intellectual property, seeking the dynamic equilibrium between protecting the rights of scientists and creators and securing the broader benefits that flow from wider access to technology. We must translate, transfer and transmit to those organizations that are charged with establishing global regulations a sense of balance between protection of and access to intellectual property.

Our message must be clear: economic development and international trade are enhanced by minimum standards of protection and enforcement of intellectual property rights (IPRs). Only by establishing such standards can we ensure adequate incentives for the people who do the inventing and the creating. But alone, standards will not protect IPRs. Dispute settlement mechanisms, uniformly applied and enforced, must go hand in hand with standards. They must carry appropriate redress, including clear penalties.

Against this must be balanced society's need for reasonable and fair access to intellectual property. Without that, we will not get the synergistic use of research and development (R&D), across international borders, that will nurture future entrepreneurs of technology. Beyond that, remembering that tomorrow's locus of business value is not yet known, there is the need for regulatory flexibility. Flexibility, adaptability, balance, that is what Canada's business community wants to see. It is more important to achieve such a balance than it is to decide who will achieve it. The key player is likely to be the GATT, for the simple reason that any new standards agreed upon must be accompanied by effective enforcement procedures.

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[1] Steven Paul Jobs is co-founder of Apple Computer Inc. Co-designer (with Stephan Wozniak) of the Apple I Computer, 1976.

I believe it is imperative for Canada to give high priority to real progress in the TRIPS negotiations in the Uruguay Round. But there is more. Within the context of this Alice-in-Wonderland world, a world where the temptation to pirate is growing in step with the ease of piracy, perhaps it is time to look to the unconventional for solutions. I am thinking specifically of an idea that grew out of a European Economic Community (EEC) study of 1987 entitled the *Direct Protection of Innovation*, an idea that has since been refined by Professor William Kingston of the University of Dublin.

Basically, the idea is to extend IPP rights to commercial novelty. In other words, it is desirable to protect not only the invention, but the commercial product that comes from the invention—and to do it on a preferential basis, with a bias in favour of underdeveloped regions within countries. The EEC study noted that 20 years of regional subsidies has not righted the imbalance of have and have-not regions in Europe. When I look at the continuing disparity between Central Canada and the Atlantic provinces, I see the same thing. Professor Kingston is concerned that in the information age such disparities will only intensify because future wealth creation will be tied directly to the production of information-intensive products and services, and no amount of regional subsidies will be able to provide a fix. His suggested solution to this "two-speed" growth is to establish regional IPP havens within countries. The analogy Professor Kingston uses is to look at five countries with comparable resources, and give business in just one of those countries the legal protection of limited liability. You know where most of the growth will be. You know where private, investment dollars will flow freely.

Is there a way to give the same sort of boost to underdeveloped regions of Canada via intellectual property protection? Can we substitute the ownership of commercial uniqueness for the current system of transfer payments? At Northern Telecom, we have been looking at how data communications will be contributing to Canada's regional development. Essentially, we are now living in an era when information-intensive work can be "place independent through technological dependence." Data processors, analysts and other professionals can, today, live and work at locations far removed from traditional work centers. Canada will benefit from creating more of these information-intensive jobs. To do this, Canadian business needs an atmosphere of balanced IPP, internationally.

Balance is the key: balance between the opportunities that create wealth in the various regions of the world; balance between the development of minimum, international standards and the rights of sovereign nations (including Canada) to develop national standards that deal with intellectual property; balance between offering benefit to those regions and countries that honour IPRs and imposing sanctions on those who do not; balance between protection for and access to; balance. It is something that can be difficult to maintain in a topsy-turvy world: where nothing is what it seems; where croquet mallets are flamingos and the balls are hedgehogs. But balance coupled, with a child's sense of adventure, brought Alice successfully through her Wonderland. In that sense, she is as good a model as we are likely to have for our trip through the looking glass.

The Japanese Approach to Technology and Innovation

Ambassador Bunroku Yoshino

At this moment in Japan most people seem to be vaguely aware that they are in the middle of an historical upsurge of technological innovations. Every morning, as we turn the pages of newspapers, we are overwhelmed by the reports of new discoveries, inventions or innovations that are being made or applied by individuals, research firms or commercial enterprises. We sometimes wonder from where this sudden outburst of technological advancement is coming. Perhaps it may have something to do with the stage of our historical development, where scientific and technological breakthroughs worldwide are coincidentally combined by the coming of age of the Japanese economy.

For the time being, let me turn to the main theme of today's discussions; i.e., the global rivalry of innovation and technology. There does not seem to be much rivalry in technology or innovation among industrialized countries. Rivalries and competition certainly exist among the products of manufacturers and companies, but that is, after all, what market economy means.

If, for instance, you open any brand of lap-top computer, you will be amazed to find that it is densely packed with numerous integrated circuits (ICs) and electronic devices of various national origins. You will find it is a product of assembled parts and components that are produced by a dozen countries. Some are from Taiwan, some from Singapore, some from Japan and some from the U.S.A., etc. Although the brand of the computer itself may lead you to assume a certain country of origin for the product in question, it is, in reality, a composite product of chips, wires and other parts, made or processed by a variety of countries. The technologies and innovations involved are also owned by various individuals or corporations, and are not necessarily limited or connected to the company whose brand the assembled machine carries. It is a product of licenses or patents owned, shared or crossed by people or firms spread all over the world. You would also realize that the quality of such high-technology products as computers lies not only in the assembly of complex parts, but also in the assembled parts themselves, which often originate outside of the company that has the brand.

Intense rivalries exist among manufacturers of computers, or any other high-technology products, regarding their quality and prices. But the rivalries between competing companies seldom concern the technologies involved—the owners of the technologies are usually different from the manufacturers—rather, they concern the price and quality of their end-products in the market. Such rivalries among the private companies of various nationalities that are producing similar kinds of products are aimed at increasing their respective shares of the world market.

I am not denying the existence of a certain technological nationalism, or national rivalry of technology, in some sectors of industry or in political circles connected with national security. The FSX case in Japan, which involved a next-generation fighter bomber, is a recent example. Last year, we concluded an agreement with the United States concerning the manufacture of this next-generation fighter bomber, under which the Japanese side would be provided with "know-how" by the American manufacturers. The agreement, however, came under pressure from the United States Congress and was abruptly revoked. It had, therefore, to be renegotiated under new conditions. Another case relates to the so-called "Structural Impediments" negotiations with the United States, under which Japan recently concluded an agreement wherein the Japanese would purchase more U.S.A. satellites in spite of the fact that the Japanese government is subsidizing the promotion of national satellite production. These cases show that in certain sensitive areas, where national governments are involved, a clash of national policies or interests occurs and a certain kind of rivalry does take place.

At this moment, the Japanese economy is enjoying unprecedented prosperity, and is regarded as a major source of productivity and innovation. The secret of this success lies with Japanese companies and corporations. Although they are built on the basis of stocks and shares, private shareholders are traditionally interested in long-term gains and not in short-term profits. They are keen on payback over a number of years, rather than on quarterly returns. The employees of Japanese companies, from executives to blue-collar workers, are also interested in their long-term employment. Thus, whole companies are willing to set aside a high proportion of their earnings for R&D, in order to increase competitiveness among themselves.

Technologies and innovations cannot be developed overnight. You have to plan and develop them over five to ten years by organizing and coordinating the required activities and resources. Dedicated and well-trained, in-house engineers, together with supporting staff, are essential to achieve this and, above all, you must have a good, long-suffering management. This scenario presupposes that the majority of shareholders are understanding and patient enough for long-term gains. Most of the existing Japanese companies that are thriving are structured in this way. I know of one Japanese electronics company that spent over 12 years nursing an obscure and baffling technology finally into a successful product.

Big Japanese multinational companies have transplants, or clones, in North America, Europe and elsewhere in the world. As much as possible, the management at headquarters transfer their management styles and work practices to their clones overseas. They try to educate and train selected members of their overseas staff by inviting them to the home companies, in order to teach them how to run the companies abroad. The Japanese know that this process has limitations. If the so-called corporate cultures between Japan and overseas are very far apart, it is a waste of time to introduce Japanese management and work practices across national borders.

Japanese companies have encountered a number of such cases. After buying a United States company, the team of U.S.A. managers of the newly bought company would ask the Japanese headquarters to write off all deficits. As well, they request that all deficit-producing departments be separated and sold off. The new management likes to start off with lighter burdens and hopes to be able to show black figures as quickly as possible. The Japanese headquarters would insist, however, that this is not the way the

Japanese run a company. No one knows whether the present red figures are a result of the company's long-term endeavours to develop a new technology or a new program. The Japanese would say they have bought the company as it is, and have no intention of breaking it up at the beginning. They are looking ten years ahead, and are not expecting black figures immediately.

I have dwelled upon some aspects of Japanese management style because I believe the present technological proliferation in Japan is mainly the product of Japanese corporate culture. At this moment, however, due to worldwide deregulations and because of the expanding economic boom in Japan, foreshadowed by the rapidly aging population, the Japanese management climate seems to be eroding. The world economic integrating process will also work toward equalizing different corporate cultures. In future decades, the current Japanese technological burgeoning will cease to exist. Meanwhile, the world will have to live with it.

Technology, Trade and Intellectual Property Rights: A Case for Innovation

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Geraldine Kenney-Wallace

I am going to address the increasingly topical topic of intellectual property rights. I will focus on technology and, at the same time, keep an eye on public policy. I will pose a number of questions that are going to be seminal over the next decade, again from the technological viewpoint. My message is very simple, and I hope clear, with respect to IPRs—innovate, don't litigate. We will be dealing with litigation later in this conference; therefore, I will focus on the innovation side. The protection of intellectual property is necessary in order to exploit it for commercialization, but the other side of the coin is the avoidance of being exploited by somebody else in the future. The time scales of commercialization and exploitation are so fast in our modern, global economy that the balance between protection for exploitation purposes and protection to avoid being exploited is a very complex issue and one that is acutely sensitive to shifts in legislation and human behaviour.

Intellectual property is dependent upon time. This is particularly true for patents in advanced technology. Patents can protect your ideas, working models, processes and products now, or they can protect options that are really part of a future business strategy. In these days of global change, no one is quite sure how the pendulum between innovation and litigation will swing. Patents can protect your options by formally acknowledging prior art in a quiescent field, but perhaps years later these applications explode as, suddenly, a new market need is met. One technology often merges with another. For example, we are now seeing the significant impact of 1960s research in cross-fertilization patterns emerging as scientific innovation and technologies in medicine. Let me remind you of the breakthroughs in radiation therapy for cancer, using monoclonal antibodies. Biotechnology, information technology, lasers and optics experts must come together with clinically trained people not only to implement new treatments, but also to decide precisely who gets the credit, who owns what, and who is liable for any unanticipated eventualities that may arise.

I saw the most interesting cartoon not long ago. It was amusing, but it recognized the dramatic change that has taken place in technology. There were three rats in a laboratory. Two of the rats were in one corner, looking at the other rat, sitting there with a cocky attitude and in a sweatshirt bearing his name. The rats were saying, "Monty has become impossible ever since he was patented!" That patent decision changed a lot of views on what is possible in the biological world. We have to be very careful that the IPR decisions we make today are not based on what was patentable yesterday, but on what is patentable now. Being innovators in technological areas requires us to keep an eye on what is happening in the courts and to note the landmark or precedential, ethical decisions, as well as the interpretation of decisions that are being made on IPR issues, and the arguments that are being presented on the recognition of public and private goods. It is important that policy advisors and policy-makers in Canada acquire a far broader and more technologically-based understanding of what is needed and what must be re-examined in Canadian legislation.

Examples of innovation and litigation are bound together in our newspapers. By focusing on the technological side, I hope to show how the actual value of patents in a given area of research and development is very much influenced by the type of technology, maturity of technology and the dynamics of the marketplace. And marketplaces are, indeed, changing very fast. In an area such as microelectronics, where new products and processes appear every month, going through a legal, patenting process could outstrip the value of the patent. Yet, if you wait to patent before commercialization, you might lose the market share! It's a question of timeliness. On the other hand, having no patent leaves you unprotected later on, should someone else try to follow the same product route. It is a question of strategic balance and time scales. Patent law has become more of a mainstream activity. Canadian law schools and firms should ensure that they have the prerequisite technological confidence and competence to meet demands.

For this reason, I wish to group my remarks under three headings: R&D and information flow; marketing and innovations; and the time scales of the penetration of ideas into the marketplace. A fuller understanding of these three topics is essential if we are to gain an intuitive feel for how certain aspects of intellectual property are viewed in certain sectors of society. This is absolutely critical when it comes to global technology and global trade. My views are based upon personal experience in patenting, upon the issues of competitiveness that have formed a backdrop to innovation in the past decade, upon recent changes in patent procedures and upon background surveys of firms that have dealt with IPR issues.

From the Science Council's work on intellectual property, which was a collaborative project working with Industry, Science and Technology Canada (ISTC) and Corporate and Consumer Affairs, as well as the above-mentioned material, we can obtain some very good snapshots of IPR issues in Canada.[1] What surprised me in particular, was how little is known about intellectual property in Canada. Many people are interested in IPR, but most are not quite sure what to do with it. This perceived powerlessness is something all of us have to address. The major R&D firms are well aware of IPR, and they have to live with its legal and fiscal issues every day. But, when we consider the economic and industrial structure of our country, we quickly realize that major R&D firms are the minority players on our industrial landscape.[2] So, how do we get IPR issues and innovation messages out to a much broader community? I will try to answer this question in each of the three topic areas below.

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[1] See "Innovation and Intellectual Property Rights," Science Council of Canada, (Department of Supply and Services, March 1990).

[2] "Grassroots initiatives, global success report of the 1989 National Technology Policy Roundtable" (co-published by the Science Council of Canada, the Canadian Chamber of Commerce and the Canadian Advanced Technology Association, 1990).

R&D and Information Flow

If R&D is investment equity for the future (and not debt), then the questions we have to pose are:

- How do we protect our investment?
- How do we collect the dividends?
- How do we leverage and exploit the investment?
- What are the time scales over which this investment is going to yield a high return?
- How are we going to protect our intellectual property?

We already have clear indications of the differences between the long-term views of Japan and the Pacific Rim countries, and the short-term views prevalent among managers and financiers in North America. These are not new questions. It is a very different global trading environment that is new.

Thomas Jefferson was the first Commissioner of Patents in the United States. This fact not only establishes that there was an interest in patenting in the expanding trade period of that time, but that intellectual property had a highly political profile. Furthermore, entrepreneurial activity was recognized and rewarded. Canada's first *Patent Act* became law in 1869. The passage of *Bill C-22* on pharmaceutical patents in 1987 was the first significant amendment to patent law in Canada in 50 years. Perhaps this is a reflection of our acquiescent culture. Indeed, if you look at patent history and statistics, it is possible to see a reflection of the economic and social values and culture of a country. An examination of the U.S.A. and Japanese patents that are most active at present reveals the United States as a resource-based country of enormous land mass, whose pioneering activities are a superposition of the industrial revolution and survival on opening up the country to new immigrants.[3] In contrast, Japan is focused on the results of the 1960s R&D laboratories that now shape consumer markets for high technology. Patents reveal our past. I will now make the case as to why we ought to be worried about the future.

Intellectual Property Rights is a collectivity of interests, a world of patents, copyright, trade marks, licensing agreements, industrial designs, trade secrets, plant-breeders rights (still in contention), software copyright, protection of integrated circuits, and legislation such as the *Semi-conductor Chip Protection Act* in the United States. The latter message is more than subliminal. "As long as you do it in the United States, you will get that IPR protection from us." It is advanced technology itself that has led to this explosion of knowledge and litigious responses.

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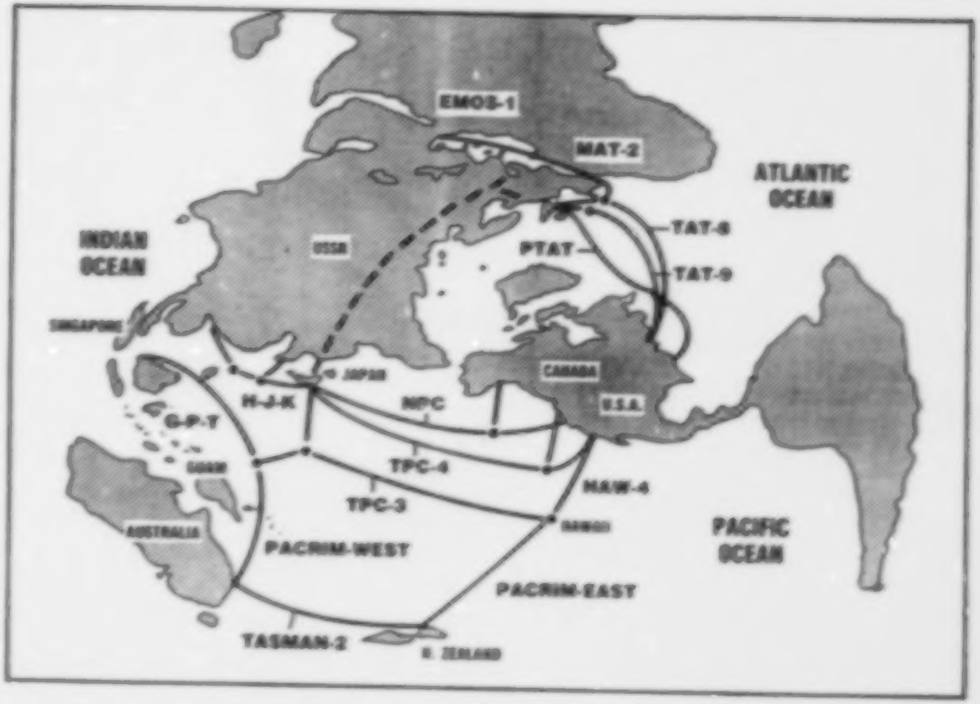
[3] "Science and Technology Policy: Pervasive and pragmatic for the 1990s." Paper presented at the Inaugural Conference of the School of Policy Studies, Queen's University, Kingston (April 1989).

I want to show you a map where the ocean's currents are a dynamic chart of the flow of knowledge between continents—R&D can be defined generically as the generation, acquisition and adaptation of knowledge—and to show you how this map is building on the information technologies revolution and rapidly growing telecommunications industry, estimated to be 1 trillion dollars U.S. worldwide by the year 2000 (see Figure 1).

Look at the new communications linkages. In a world awash with technologies, I believe that getting knowledge organised, and spotting the critical piece of information upon which everything else depends, is the key to a competitive edge. Thus, the generation of knowledge, and access to that knowledge, becomes the number one priority toward strategic action in any advanced technology milieu. Commercialization requires a smart manager of technology, who has a broad perspective of potential market applications and a good understanding of global markets. What are those global markets?

The networks of knowledge, either currently in place or that will be in place by the mid-1990s, are labelled on this global, fibre optic, oceanic cable map. These are the information flows through fibre optics that are providing linkages of us 24 hours a day. Oceans link, they no longer divide. Oceans are humming with information at megabit capacities flowing through different tropical and arctic areas. The Trans Atlantic Telecommunications (TAT) systems, The Trans Pacific Communications (TPC) system, the Hawaiian (HAW), Pacific Rim (PACRIM), Australia, New Zealand, Guam, Hong Kong, all of the European networks, and even the proposed Siberian land bridge between Tokyo and Moscow (with a small spinoff into Eastern Europe) will be in place in the mid-1990s. These are the trade routes of the present that will give a comparative advantage in the future. As we speak, all of your fax messages to Europe, encoded into ultrashort laser flashes, are travelling at the speed of light on TAT-8. In the future, data, voice and images in two or three dimensions for designs, (chip designs, molecular drug designs, architectural designs) will be flowing along those trade routes, flowing at rates exceeding any human transaction. There is no time to wait for a

Figure 1
Global Fiber Optic Submarine Cable Network


EMOS-1
MAT-2
ATLANTIC OCEAN
TAT-8
PTAT
TAT-9
INDIAN OCEAN
USSR
SINGAPORE
JAPAN
H-J-K
NPC
CANADA
U.S.A.
G-P-T
GUAM
TPC-4
HAW-4
TPC-3
HAWAII
PACIFIC OCEAN
AUSTRALIA
PACRIM-WEST
PACRIM-EAST
TASMAN-2
N. ZEALAND

scientific or technological discovery to appear in a journal or in a trade magazine, and there is no time to wait for action at the annual shareholders' or monthly directors' meeting. Clearly Canada must be at the table in discussing and agreeing to standards, regulations and IPR issues that affect these communication linkages and, thus, our electronic trade routes for the 1990s.

The global, scientific village is operating in intellectual free trade, it always has. Now its members can work even faster. But the members of the global, scientific village, while relishing the bounty of results that are coming along the information networks, also know when not to talk. Active researchers know when to share information freely and when to retain that little piece of black magic. The critical step or component that gave the competitive edge becomes the substance of IPR. What is incomprehensible to one R&D specialist becomes a brilliant insight to another. This is why visits to R&D laboratories are so tightly controlled by commercial organizations. Observant eyes or well-developed sensory abilities can pick up valuable intelligence. Canada's research community requires enhanced R&D support and encouragement to be keen international observers. But the knowledge must be exploited more effectively.

The way we generate, organize, share and obtain access to valuable information concerning private intellectual property, in the context of the global networks, has taken on a new and often legally and socially challenging dimension. The motivation for intellectual protection may not always be commercial. It could be national security or personal privacy. Who gets the information? Who needs to know? How is this information used? The answers have enormous consequences outside of the commercialization of technology, but I am not going to address these issues today. Although we are operating in April 1990 in more of a "cold peace" scenario, than in that of a cold war, I nevertheless anticipate that the global rivalry in technology will not diminish. Global rivalry will merely shift to consumer markets. Given the existing trade tensions, the strategic challenge for some economies such as the U.S.A. to address is how to shift from a militarily-dominated to a consumer-dominated technology in such a way that we have a harmonious, global trading system and not a destructive one. Fortunately, and perhaps ironically, much of modern electronics-based technology can be used for war and peace. For example, many strategic defense initiative (SDI) technologies could be readily harnessed for much needed environmental monitoring. An environmental strategic initiative would be welcomed by the public as global trade becomes increasingly linked to principles of sustainable development in policy discussions.

How do we creatively manage those shifts, while keeping free-market philosophies? One might remember that in our system we have tax havens. Is there an analogue? Imagine developing intellectual property havens! But the consequences of having global rules on the existence and jurisdiction of IPRs that are not clear will only exacerbate global rivalry, instead of enabling global trade to evolve as healthy economic competition. If the policies are not clear, the situation will be worse than having a bad policy.

In summary, the risk-reward ratio in R&D demands clear, international IPR rules and practices. Unless the private sector collaborates on IPR with researchers, whether they are working in government, universities or private-sector laboratories, nothing commercially substantive will happen. The R&D information flow will have a positive impact on world trade if we have coherent, coordinated and well-communicated IPR policies, operating both at the national and international levels. This requires timely actions within Canada, as well as a proactive Canadian role in international discussions on technological IPR issues far beyond our traditional resource-based or commodity experiences.[4]

Innovation

Innovation, first and foremost, is a mindset, an attitude toward achievement and continued improvement. Canada does not have an impressive record in this area according to the European Management Forum (see Table 1). By innovation we also mean exploitation of intellectual property. Research and development is a necessary (but not a sufficient) condition for successful innovation and market performance in the technology-intensive sectors. The issues of cost of capital, available pools of capital, terms of financing, taxes, energy, the availability of highly qualified people, the regulatory environment, transportation, land costs, vary from country to country, on a sector-by-sector basis. International competition may build on similar R&D, but the innovative results may vary dramatically as a result of different infrastructures and different governmental, regulatory systems. We need a set of innovation policies to provide a coherent framework

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4. "Governments & corporations in a Shrinking World: trade & innovation policies in the United States, Europe & Japan," by Sylvia Ostry, (Council on Foreign Relations, Inc. N.Y., 1990).

for the exploitation of trade that is R&D intensive, and to assure an enhanced market share and sustained export performance at home.

If we look at Canada's overall performance with regard to innovation and marketing, the result is not necessarily representative of all of that actually happens. Every average smooths out the exceptions and, obviously, some individuals, laboratories and firms have been extremely aggressive. In each province, there are varied experiences depending on the regional industrial landscape, the degree of foreign investment and the degree of entrepreneurial activity in the face of international markets. It is important that firms new to this process realize that just getting a patent is not the end of the innovation story. Exploiting patents is an intrinsic part of the innovation process, and IPR is part of a broader set of innovation policies. This is the key.

Table 1
Marketing of Innovations

Japan	1
United States	2
Denmark	3
Germany	4
Switzerland	5
Italy	6
Sweden	7
Belgium	8
Netherlands	9
Canada	10

Source: European Management Forum Survey

Perhaps an example of how patents can be exploited will emphasize innovation in several pertinent ways. In the world of quantum electronics (lasers and microelectronics), we are constantly reminded of how rapidly an idea or product can move from one area of development to another. The semi-conductor laser diode was one of the earliest lasers to be invented, although it proved to be rather temperamental (as most lasers are in the early stages of discovery). In the period between, considerable solid-state research (emerging from Europe and North America in the 1950s) was being exploited to make these diodes lase. Triumph came in 1964 and throughout the late 1960s and 1970s laser scientists, physicists and engineers wrestled with making diodes reliable and efficient. I remember doing some early developmental work on them in the United States in 1971. I begged RCA to give me one of their laser diode prototypes so that I could try it out for a new laser diode. Given a tiny, two millimetre gallium aluminum arsenide chip, we tried to drive this diode chip to lase at room temperature, with a current density of 50,000 amps per square centimeter. It worked! It was just an amazing experiment, but that is called research, and competition is a strong motivator. There was an international drive to obtain better performance out of these chips because they were going to be used in spacecraft docking procedures. Diodes were the optical eyes that were to be used in robots for "seeing" the spatial coordinates as two massive spacecraft systems docked, and for recording (via electronic sensors) the moment they were locked into position. U.S.A. researchers began to realize that if one could use laser diodes for precision manoeuvring in space and for accurate reading of spatial dimensions, one could use them anywhere if industry could make them reliable and cheap. So did the Japanese. Many routine "seeing" functions today include fibre optic transmission lines, compact discs, supermarket scanners and bar codes. Remote home security schemes, robotic controls in automotive manufacturing and imaging systems for video are but a few examples of use in daily life. Japan increasingly controls the market; hence, the trade friction and litigation mindset currently prevalent in Washington, D.C., as United States policy-makers debate trade and IPR issues in the semi-conductor industry.

Today's IPR issues in the semi-conductor industry, which is a substrate technology for so much of our private sector (service and manufacturing) should be closely followed in Canada. We must never lose access to microelectronics know-how in both design and manufacturing. We can earn access through our IPR and patents and innovation, if we focus our present uncoordinated efforts.

Optical information storage was also a hot IPR topic in the mid-1970s. There was an incredible amount of research being done with regard to encoding and decoding information at the molecular level using laser spectroscopy. In conjunction with molecular photophysics and photochemistry, the goal was to answer questions analogous to those in the early days of computers. How do you read in the information and store it; for how long are the data secure; how do you get quick access to the data? During that time, the international community, sponsored by governments and the private sector, worked feverishly on competing R&D solutions. Phillips in the Netherlands, also did some very smart strategic planning, which produced the earlier commercially available compact disc in the 1980s. The secret of that breakthrough was patenting plus a novel cross-licensing plan. I have used this example to emphasize how important cross-licensing can be, particularly as trade and technology become the prime motivators for the formation of industrial consortia and global, strategic alliances. These are clear lessons for Canadian firms and Canadian national strategies in this project.

Phillips, Sony and a Japanese consortium had drawn up a cross-licensing agreement for the intellectual property regarding optical data storage projects. This made it mandatory to cross-licence any technology developed to all of the other companies within the group. When Sharp made the laser diode work more reliably and at a cheaper price than any other supplier, everyone in that group had access to that vitally important competitive edge. This allowed the group to get the compact disc product out faster—I estimate by five or six years—and to capture the market share first. Furthermore, it allowed those in the group working on the sub-assembly parts of the system to set the world specifications and standards. Once you have set the standard, other competitors usually have to follow. By getting into the marketplace first, there was time to create a customer acceptance for the product at the same time. This is now a multibillion dollar market.

This is also an example of a breakthrough technology, which was going so fast from the innovative, laboratory research to development stages that there was no time to wait and see what happened to a prototype product. The only thing to do was to group together in a consortium the expertise probably needed to build on proven strengths in R&D, to share the costs, to share the risks, and to ensure via mandatory cross-licensing that everyone would have access to the data and technology needed to achieve the final goal.

This is also an example of innovation at work in the boardroom and in the laboratory because, without confidence in such an alliance and leadership from the senior executive level, the consortium plan would not have worked. In contrast to the scope, scale, standards and regulatory constraints of that high-tech example is the resource-based industry. Global rivalry takes on a different pattern in a much more mature industry. A mature industry may be more resistant to change and innovation, hence to the value of IPR. Lawyers are prized over innovators! However, a small, incremental change (as opposed to breakthrough) in the product process, can mean multimillions of dollars in cost reduction overall.

Consider the forest products industry, which is facing a triple challenge in the 1990s. A higher global newsprint demand is compounded by an electronics revolution in the way information is transmitted and by environmental regulations, as well as by increasingly vocal public activism and ecological awareness. All of these factors have substantial impacts on both production processes and costs, and even on the future viability and feasibility of logging in traditional areas. Putting value-added, through science and technology and innovation, into the forestry and pulp and paper industry means, perhaps, more focus is needed on incremental change rather than on radical breakthroughs. Nevertheless, a renewed focus on IPR issues is needed to ensure incremental and patentable improvements can bring more than just intellectual profit to the company. Better products are in demand by the consumer. Research and development is investing in future competitiveness, from chain saw to reforestation and silviculture. Many forestry companies have diversified over the past five years and have become more aggressive on patent issues through R&D joint ventures with university and government laboratories.

Innovation in laser diodes and sensors, robots, computers, genetics, processing of materials, remote sensing and geographic systems analysis, corrosion and environmental issues concerning biodegradable packaging are all part of the forestry business in the 1990s. Innovate, don't litigate. Remember, a comparative advantage can be gained through fusion of routine technologies in unexpected ways. With Canada's heavy reliance on forestry, and in general on the resource-base for trade, the question still remaining is: Why has innovation been so slow *here*? Why does Canada still export raw materials in the main, and import finished products from those materials? Do patents hold back innovation or does lack of innovation fail to spur new patents?

Finally, for very mature product lines, sometimes the only innovative avenues open to exploitation are energy and transportation. Consider a synthetic chemical, shipped worldwide by the megaton as a processed material, from which literally hundreds of consumer products are then made locally. In the early

1980s, one major chemical company realized that if transportation regulations stipulated that shipping costs were to be charged by volume, then the R&D challenge was to make the packaged product denser and, thus, smaller in volume and heavier. On the other hand, if transportation costs in the country were to be charged by weight, the R&D people were told to make a lighter product in the same volume!

Innovation comes into every aspect of technology and trade. You have to know the R&D, understand your business and your product well, and be cognizant of the regulatory framework, all of which can have an impact on your approach to IPR issues.

Time Scales and IPR

Let me conclude by illustrating the importance of time scales on a mature technology—the automotive trade. In technology, it is very important to understand the time scales in which you are working in order to avoid a mismatch of goals and objectives with timing pressures from market rivalry. There are time scales for the process of discovery, patenting and proof of principle or of inventions. There are time scales for R&D, time scales for financing of R&D and, in contrast, the expectations of business performance in the quarterly shareholders' report. Much more patient financing, that can extend over many years, is required when you are dealing with technology. There are also longer time scales for prototype manufacturing, marketing and customer acceptance. Figure 2 gives an example that pulls together many of these factors. To demonstrate the time frame for the penetration of innovative ideas into global markets—and this is innovation in the automotive industry—I have selected an interesting figure from an ongoing Science Council study.[5]

It is 1990 and we are consumers looking at the Nissan Motor Company automobile showrooms. What modern features of the manufacturing process are in the latest car and from where did the innovations come? How long before the innovation entered the marketplace? Eighty per cent of all innovations, initially driven by R&D that was going on in 1976, are now out on the car in the salesroom. About 30 per cent of the incremental improvements in the product and in the manufacturing process—innovations that

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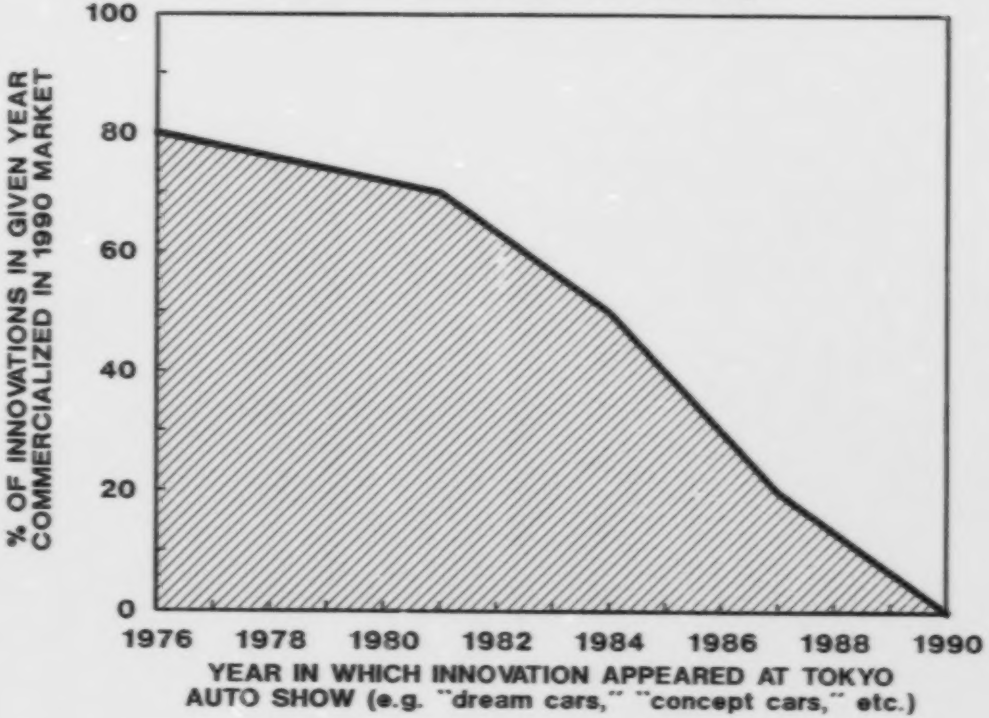
5. Unpublished data from ongoing Science Council of Canada study on sector innovation strategies (1990).

Figure 2
Timeframe of Penetration of Ideas into Markets:
Innovations in the Automotive Industry



were realized in 1987—are now in the marketplace. This conclusion naturally follows: a significant amount of what we will see in the showrooms of the year 2000 is already out of the R&D laboratories of today and is well into the innovation process.

What is the lead time required for diffusion of technology into the marketplace? It can take five, ten, even twenty years to see the final results of innovation, depending on the type of technology. Automotive vehicles are beginning to look like airplanes on wheels or media control studios from the driver's seat, where sophisticated panels and displays present continuous monitoring of engine performance and a dazzling array of entertainment options. To those of us who were in graduate school over 25 years ago (and fixed our cars and laboratory machinery with wrenches from the same tool boxes), these changes in technology are a source of nostalgia, as well as a sober reminder that what we researched and developed had an impact far beyond our own disciplines. This time scale of diffusion is very important to grasp when evaluating areas that should receive priority for developing advanced technology. The same fiscal investment over three years will lead to different dividends and growth rates in areas as disparate as biotechnology, health sciences (especially genetics), and micro electronics. Aerospace, information technologies, robotics, optical technologies and the ongoing search for novel synthetic materials all consume 10 to 15 per cent of sales as investment each year in leading commercial enterprises and yet operate on time scales of months through to decades for product development.

Whether putting value-added into the resource base through slower, incremental change on an agricultural process, or considering ultimately new pilot plants such as a mini-mill in steel manufacturing, or dealing with breakthroughs in high technology for products in tomorrow's microelectronics market, the time scales of product development must be compatible with the time scales of intellectual property recognition, exploitation and licensing constraints. Different markets have different time scales. Moreover, if government or industry impose technological breakthrough policies on incremental adaptation and change, a mismatch is inevitable. If decisions on IPR policy are taken with an incremental mindset with regard to breakthrough areas that are exceedingly competitive and fast moving (such as biotechnology) the policies will not work. It is time to realize that we need a blend of IPR policies that will create a flexible climate for the risks that are dependent on time, rewards, innovation and exploitation of intellectual property in order to achieve effective competition in a worldwide arena. This is an area requiring urgent attention in Canada and one fertile for co-operative work between the policy elites and market performers.

In the 1990s, global rivalry could be exacerbated by intellectual property rights, given our collective failure to have achieved an international framework for discussion and settlement of disputes. Have and have-not countries in the North-South debates usually refer to the gap between the rich and the poor. In the future, this could come to mean more: those that have access to intellectual property and those that do not. Right now, the newly industrialized economies are just as competitive in IPR as are the industrialized countries, and there is a need to keep competition open and healthy. In order to get access to knowledge, we all have to be prepared to give access. In recent and current bilateral treaties on R&D, this is always a fine point for tough negotiation, but the stakes are too high for neglect or deferral.

The current round of discussions on IPR in the GATT is sometimes seen as a buffer against bilateral agreements that are restrictive. Throughout a year of negotiations on the new Canada-Japan Complementarity Study, which I and seven colleagues on a Binational Committee carried out at the request of the Prime Ministers of Canada and Japan and submitted in July 1989, IPR issues were high in profile. Fortunately, the issues were not as complex to resolve in Canada, where we focused on R&D in basic research, as in the U.S.A. and Japan negotiations because of the role of military R&D in the U.S.A. As a member of the Canadian Delegation to the White House Conference that President Bush called on global change in Washington in April 1990, I saw IPR issues and the environment meet unexpectedly in North-South debates with developing countries, over their demand for free access to the technology, and concomitant IPR. Again, Canada in her foreign aid and trade must fold in a position on these issues as part of long-term or short-term agreements..

Another aspect of global change is, of course, the shifting ethics of the business environment. What will be the impact of the implementation of new regulations and the pervasive character of worldwide environmental issues? With fossil fuels and CFC hydrofluorocarbons subject to restrictions and probably taxes, we need to re-evaluate traditional energy sources and seek new sources that have a whole range of different, environmentally benign properties. The 1990s is going to be a decade in which we reshape to a new business climate. In the trade-off between industrialized countries on environmentally acceptable actions, trade, IPR and free access to technology are going to be part of the South's negotiations for developing these countries' roles and responsibilities in sustaining the environment.

All countries and societies seek a better quality of life for their people. While the goals may be the same, the pathways chosen depend to a large extent on ideology, as well as on the natural, comparative advantages of countries in terms of renewable resources, education, literacy levels, the health of populations, and so forth. It is clear that much of the degradation of the environment has arisen from the 100 years of industrial activity of the Western nations. It is clear that the uncontrolled development of today's poorer nations will lead to even worse disasters, as population growth puts an unprecedented demand on resources, energy and water.

Increasingly, there is talk about establishing new, international agencies that would be devoted to financing environmental projects on transboundary problems. If this involves R&D projects, who gets the credit? As with the compact disc consortium, these IPR issues must be understood and the IPR agreed to well ahead of time, or the involvement of the private sector will be minimal. The potential for transforming R&D for environmental technologies into the marketplace to solve the problems very much depends on the integration of IPR into trade and technology forums at the local, national and international levels. It is not an accident, or philanthropy born of economic surplus, rather it is a long-range plan for future technology and the development of trade alliances.

At the first Pacific Rim Summit, held in August 1989 in Seattle, some 21 countries addressed the issues of finance, trade and international agriculture, forestry and fisheries, and the imperatives of trade, technology and intellectual property rights. Despite many significant, bilateral trade agreements, there was a general consensus that IPR must be a global currency and IPR was too important to leave to the lawyers. Therefore, as a concluding motto, let me offer, "In GATT we trust." Canada, as a member of the G-7 country group, GATT, the Pacific Rim group, linked to the U.S.A. (and potentially Mexico) via the Free Trade Agreement with a long-time presence in the developing world, surely is in a position to build a set of flexible innovation policies that blend R&D, information linkages, innovations and time scales into a coherent strategy for global trade and IPR. What we need is the leadership and will to do it now.

The Place of Intellectual Property Rights in the Evolution of Innovation Policy

Sylvia Ostry

I am glad you were at a meeting that ended saying, "in GATT we trust," Geraldine. I was at a meeting where I was extolling the virtues of GATT and a Minister from a developing country leaned forward and said, "You know what GATT is known as in my country?" And I said "What?" He said, "Go Ahead and Talk Talk." Today, I would like give some idea of the place of IPRs in the evolution of a new form of international discord that is now evident in Organization for Economic Co-operation and Development (OECD) countries, especially within the triad of the United States, Japan and Europe. There isn't an accepted name for this form of international discord. I have heard it called high-technology mercantilism. That is a very narrow view of it and I have decided to invent a name—system friction—and I will explain why shortly, but let me give you some background.

The current buzzword in international discourse is competitiveness. It is a concept that, ironically, does not have an agreed meaning in economics. I chaired a meeting with a group of economists at the Centre for International Studies last week and when I used the word competitiveness I precipitated a two-hour debate about definitions. We never got into the policy issues. Economists will go on defining and debating the definition while the world moves on. The struggle over international dominance in leading industries is the central focus of business and governments. It is most apparent in the information and communications technologies (ICT), clearly because we are in the middle of an ICT revolution, and there are revolutions in sight in other technologies as well.

The center of the debate, which has made competitiveness such a visible and prominent issue, concerns the Japanese or Pacific growth model. Perhaps that is too broad a term because the Asian countries are all very different. The Singapore and Hong Kong models are quite different from the Korean model, for example, so let me leave it as the Japanese paradigm. It is a growth model that is described as targeting so-called, undefined, strategic sectors and technologies, so that the rivalry is much broader than the definition of technological rivalry presented with the example of the FSX fighter bomber case. The United States and Europe believe that Japan successfully pursued a policy of creating competitive advantage by a unique mix of policies that I call innovation policy, which is a better term than industrial policy. Industrial policy has a connotation of ailing industries and the 1970s. Innovation policy captures the idea of a more aggressive and assertive policy approach.

When you look at the Japanese paradigm, you see a mixture of trade policy, technology policy, financial market policy, and a unique policy that has to do with organized market structure (a combination of market organization and continuing interface with government). The policy was particularly evident in the very rapid growth period of the 1950s and 1960s, and it did influence both the rate and pattern of industrial investment. However, as Ambassador Yoshino has said, there have been major changes and they are still occurring very rapidly. But the paradigm still contains a unique blend of co-operation and competition, a long-term view that is very important, and indicates a continuing interrelationship between government and industry that has a strategic nature.

If one talks about a market model, the term I would use would be a "corporatist" model. It's similar to the social, market model of the Germans, and is very unlike the pluralist, market model of Anglo-Saxon countries, particularly the United States. And inherent in the differences are different weights of consumer and producer interest. Producer interests tend to be longer term than those of consumers.

We could debate the Japanese paradigm and could all cite economists who say that it exists and other economists who say that it doesn't. We could go on forever. However, it has acquired a degree of validity. Indeed, it has acquired almost mythic proportions in some people's minds, so that there has been a very strong, perceptible, policy spillover to other countries. That policy spillover was evident both in the United States and in the EEC, particularly in the 1980s.

I won't go into detail or try to document the policy spillover. In the EEC, the response to the Japanese paradigm has been more strategic and focused than it has been in the United States. It is most evident in the technological area, with the development of Miti-like models within the European Technology Commission (ETC) and the business community. These governmental and industrially funded research consortia are most evident in information technology (IT) and have developed since the launch of Europe 1992.

It has not really been understood that the mandate for ETC was given in the *Single European Act*. The mandate covers three key areas of innovation policy—competition policy, trade policy (which they already had) and technology policy. If you look at the *Single European Act*, 11 of the 29 clauses deal with technology, so that it is not a minor issue: it is a major focus. And it has only just begun. While the commission's activity with regard to technology policy is strongly supported financially by the European business community, it is still vastly outweighed by that of the member states. But the momentum at each new phase is far greater at the commission level than it is at the member states level, and it clearly and, indeed, in some of the documentation, explicitly, follows the Japanese model of a joint governmental-industrial research consortium.

The other spillover that was mentioned by Geza Feketekuty is the use of anti-dumping by the EEC. It is targeted against Japan's so called strategic-sector products, hitting not just Japan, but Korea and the other Pacific Rim countries as well. However, it backfired on the United States in a boomerang effect, and has increased friction. Anti-dumping policy has become very controversial and we will have to wait to see whether it will be modified in the Uruguay Round. There is evidence that the EEC used anti-dumping as an instrument of industrial or innovation policy.

The determination of certain European research consortia concerned with semi-conductor technology to keep the Japanese subsidiaries out of Europe, the biggest of which (Jessie) was launched last year, has been another aspect. The Europeans were also forced to keep out IBM, to their great embarrassment. IBM then launched a strategic alliance with Siemens, and joined Jessi. Perhaps the next stage of this policy evolution will be co-operation between Jessi and its smaller U.S.A. counterpart, Sematech.

While the EEC reaction to the Japanese paradigm has been strategically focused, the United States reaction (given the nature of the U.S.A. system of governance and the pluralism of the United States business community) has been much more ad hoc and divisive. The first reaction, which happened quite early, was to change the antitrust legislation.

A major output of the *National Cooperative Research Act* of 1984 was the establishment of Sematech, which is a joint governmental-industrial research consortium along the MITI model, funded by the Department of Defense. Thus, in the United States, there is another complex element, which is the shifting role of the Department of Defense. So the word strategic, which now has so many meanings, also becomes involved with the security question and has international implications because contracts with the United States Department of Finance stipulate that you cannot transfer technology out of the country. This, obviously, creates difficulties for a company like IBM because it is a multinational corporation, as are most high-technology companies.

However, the first antitrust amendment, which allowed for research consortia, has now been followed, after a good deal of pressure on the United States administration, by a proposal to permit joint production. Congress is proposing to exclude foreign firms from the exemption. Another development in the antitrust area is the growing extraterritorial reach of the United States. The latest development in the debate over innovation policy in the U.S.A. has been the removal of the Director of the Defense Advanced Research Planning Agency (DARPA).

Trade policy is the third element of policy spillover, and is probably the most significant. The first signal came in the semiconductor industry with the bilateral Japanese-U.S.A. arrangement of 1986. For the first time, the United States participated in something quite different from the protectionism of the 1970s, when export restraints were voluntary. The semi-conductor agreement established a mechanism for voluntary expansion of imports by establishing market shares for foreign semi-conductors in Japan, as well as "cartelizing" price arrangements in this strategic sector. Although the Japanese have argued they did not agree to a 20 per cent share, that is what the United States is monitoring. That arrangement goes on to 1991, and there is the question of what happens then.

However, the semi-conductor agreement is probably a less important signal than the most recent trade development, the structural impediment initiative (SII). This is a more telling response to the Japanese paradigm. The SII got to the heart of the issue, as Geza has alluded, when the United States made its ill-fated attempt to deal with high technology in the Uruguay Round. However, the U.S.A. was never able to explain what was wanted, so that the reception to its attempt to include high technology in the lead-up to the GATT Round was very negative. At issue was a significant divergence in systems that creates serious friction, and this has come out in the SII.

In the area of trade, high technology and sophisticated goods in services, it is quite true, as Ambassador Yoshino says, that there is competition among corporations. But, it is also competition among systems because the capacity of corporations to compete is also affected by domestic rules and the domestic background from which they spring. Therefore, the SII is a good example of groping toward a resolution of this problem because, if you look at what the negotiations were about, the United States was alleged to have said to Japan, here are 250 items that we would like you to change, and Japan said, here are 80 items that we would like you to change. But what the United States was saying was: why won't you be like us? And what Japan was saying, more quietly, was why won't you be like us? So that the basic issue is the divergence in the systems.

This was acceptable in a less interdependent world, in which the interface among countries was protected by border measures. If you look at the lists that were published, the United States list focused on Japan's micro policy, macro policy, consumer tastes, corporate performance and so on. The same thing was true of the list Japan submitted of United States "deficiencies." It is clearly an intolerable situation. It is quite impossible to insist that countries not diverge in any way. But the friction is a very powerful friction.

Divergence are two options in what is happening in system friction. The more likely option, in my view, is that since it is a bilateral dispute between the United States and Japan and since, unfortunately, it is called a trade dispute and its context is the bilateral trade balance, it will be judged in terms of quantitative trade results. If, as is almost inevitable, it does not show over a reasonable period of time quantitative results in terms of the bilateral trade balance, there is an enormous danger that it will lead to a managed approach. Under those circumstances, the EEC will have to be involved.

It is not impossible to obtain an agreement on dividing the world market. "Cartelization" within the triad might produce some stability for a time, but, essentially, it would be an unstable situation. The other option is to accept the fact that there is system friction. There is not one market model. There are very significant differences between the market models of Japan and the United States. There are probably fewer differences between the market models of Japan and the EEC, and certainly fewer between Japan and Germany. We should accept that there are differences, and agree also that it is unacceptable for everyone to be required to have the same tastes and the same behaviour. Corporations should compete on a level playing field, defined as playing by the same rules in different countries. There should be a process of multilateral negotiations on the domestic rules. You might ask, which domestic rules? It is not impossible to list them.

Obviously, intellectual property is an issue. Convergence in intellectual property would have to involve much more than what is going on in the GATT because it is not simply an issue of having minimum standards within the triad: the question of enforcement is very important. If you look at the experience of Texas Instruments in Japan, it took them 30 years to get approval for a patent. There has to be a convergence on enforcement within the triad as well as a convergence on the norms.

Intellectual property rights are, clearly, one policy. Standards, technology policy, the role of the consortia subsidies and competition policy are others. You will see how much is based on what the real mechanism of enforcement is if you look at the SII, rather than at what is on the books in antitrust in Japan versus the United States.

Financial market regulation is a candidate, since a key issue is both the cost and the patience of capital. That is partly macro, determined by policy, but it also has to do with the way financial markets are regulated. There is a much closer symmetry between the German and Japanese models, than there is between the German and Anglo-Saxon models. So, there is a list of policies in which it is legitimate to say that an increasingly interdependent world will not sustain a great deal of divergence.

The issue of system friction goes well beyond the present capacity of the GATT, so there has to be another institution that will look at it, and the only available institution is the OECD. I say, yes, to IPRs in the GATT, but IPRs in depth—I am talking about looking in detail at the enforcement mechanism, at the standards—and pushing for a degree of harmonization within a group of countries at the same level of development has to be carried out in the OECD. Subsidies in R&D can be added to the subsidy code, but technology policy goes far beyond subsidies to R&D. Competition policy is a much greater and more complex issue that cannot be dealt with in the GATT.

If I were asked what is the key policy issue for the 1990s, I would say the harmonization of competition policy with, quite possibly, a supranational regulatory body. Let me sum up by saying that, while we have moved into a period of disputes over IPRs, they are but only one issue—perhaps not the most important issue in the struggle over competitiveness. The forum for dealing with this rivalry is the OECD and there is danger in so doing that the credibility of the GATT will once again be undermined. However, that can be avoided by seeing the OECD as a bridge to a time when the GATT will be much stronger—that is if Minister John Crosbie's proposal to build a World Trade Organization (WTO) is accepted.

Intellectual Property—The Major Shifts that are Taking Place in the World Economy

Geza Feketekuty

Bob Ferchat and Ambassador Yoshino gave us excellent descriptions of the vast transformation that is taking place in the world economy. There are very major shifts underway in the new economic structure of the world economy and we have only begun to absorb the implications and consequences of those shifts. The shifts are the result of four developments. The first is the tradability of services, which follows from improvements in telecommunications and information processing technology; the second, is a very sharp increase in the intellectual property content of both goods and services; third is the globalization of production, and the fourth is the customization of production. These developments will fundamentally alter the functioning of markets and the relationship between goods and services. They have major implications for the world trading system and, ultimately, for national trade policies and world trading rules. We have begun to factor some of these changes into current international trade negotiations, but we have barely begun the process of making the necessary, fundamental changes in approaches to policy.

The emphasis the United States has put on the so-called new issues in the Uruguay Round of multilateral trade negotiations—

services, intellectual property and trade-related investment—reflects the fundamental shifts in the world economy. The question is, how did we get there? Did we get there by contemplating the world and noting that it had changed, and that an entirely different kind of approach to unilateral trade negotiations was required? The answer is we did not arrive at the new negotiating agenda through a process of academic inquiry, but by responding to the expressed needs and concerns of the business community. We developed the agenda through a process of consultation with the business community, and by making very hard political calculations.

When former United States Trade Representative, Bill Brock, began to consult with the United States business community in the early 1980s on the launching of the new Round, he found that a large number of the corporations that have traditionally been the mainstay of liberal U.S.A. trade policy were at best lukewarm to a new negotiation, and that many were hostile and opposed. However, he also found that there was a core group of service companies that were highly enthusiastic about extending world trade rules to the area of services, and that many of the larger multinational corporations were more concerned about the rules on investment than on tariffs or traditional, non-tariff gains. In addition, the Chief Executive Officers (CEOs) of many of our major corporations—CEOs like John Opel, Chairman of IBM, and Ed Pratt, Chairman of Pfizer—expressed a strong interest in improved treatment of intellectual property globally. In their view, the World Intellectual Property Organization (WIPO) was not adequately protecting their interests around the world. It was not effective; it was not keeping up to date; and the interrelationship between intellectual property rights and world commerce was not being recognized.

The idea that intellectual property should be treated as a trade issue was fairly radical when it was first raised, about 1984. Much of the conceptual development of the issues to be included in a new negotiation had already taken place. With the government's encouragement, some of the principal United States companies that had an interest in intellectual property organized themselves into a coalition, with the aim of advancing the negotiation of a new intellectual property agreement in the context of trade negotiations.

The lobbying campaign organized by the IP coalition is an interesting example of how the business community can have a major impact on policy when it organizes itself properly. The coalition developed an alliance with the Japanese business community and the European business community early on, and together they formulated a 100-page position paper, which they simultaneously presented to the governments of North America, Europe and Japan. This strategy had an immediate impact. Normally, it takes years to develop the international consensus necessary to launch a negotiation. In fact, I was involved in launching the multilateral trade negotiations of services, and it took me about 5 or 6 years to get an international consensus. In the case of intellectual property, a consensus between the U.S.A., Canada, the EEC and Japan emerged in 12 months. The business community organized itself effectively, looked for allies in other countries, and made its common case to the governments involved. It is also interesting to note that a decision concerning the launching of negotiations on trade issues was made at the top of the principal corporations, before the professionals in those corporations had a chance to consider the ramifications, or to debate the pros and cons.

Intellectual property was not on the initial list of potential negotiating issues identified in 1981 for a new round of multilateral trade negotiations. The original list, however, contained a closely related topic—high technology—which reflected the business community's concern about growing governmental intervention in high-technology industries. Many United States high-technology companies expressed a willingness to eliminate all trade barriers in high technology if the trade negotiations could eliminate other forms of governmental intervention, including intervention through industrial policies. In the end, high technology was not one of the issues included on the agenda of the Uruguay Round. The question is, why? There are a few reasons:

- United States trade negotiators ran into a great deal of opposition, even among other developed countries—there was probably more opposition among other developed countries to this idea than to any other new issue.
- United States business leaders who supported this initiative did not work up the kind of enthusiasm that could be translated into major political pressure—it was an intellectual exercise that never generated real political support.
- As intellectual property crystallized into a key issue, it took some of the steam out of the high-technology initiative—basically, people felt that the intellectual property initiative solved an important problem, even though it did not really

deal directly with issues related to many forms of governmental intervention.

- The argument was made that many of the high-technology issues were being addressed in other parts of the negotiations; e.g., the negotiations on tariffs, governmental purchasing, standards and intellectual property—it was argued that most of these issues were going to be addressed anyway under a different rubric.

This raises another question. What did we lose by not adding high technology to the Uruguay Round agenda. It seems to me we lost two things:

- We are not addressing the discriminatory elements of governmental R&D policies. There is an inherent conflict between the globalization of trade and investment, and discrimination in R&D on the basis of ownership. How can you contain ideas? How can you square the desire for a liberal trade and investment regime with a discriminatory regime in technology policy? How can you exclude technology policy, which is critical to international trade and investment, from the sphere of international co-operation?
- We lost a focused way of eliminating trade barriers in high-technology areas and we lost a focused way of limiting basically artificial forms of competition—artificial forms that are the result of competitive governmental policies, rather than true economic competition.

In the period that has elapsed since the early 1980s, the distortive aspects of discriminatory high-technology policies have become more widely recognized. One of the people who has certainly helped to crystallize this issue is Sylvia Ostry. I would commend to you Sylvia's latest book, which is called *Governments and Corporations in a Shrinking World: Trade & Innovation Policies in the United States, Europe & Japan*. It will be very influential in building a consensus on the need for international co-operation on technology policy and R&D policy. There is now a new perception among trade policy officials that this is an important issue and this is reflected in the decision of the Trade Committee of the OECD to take up the issue in the context of the post-Uruguay Round agenda.

As trade officials delve more deeply into technology policy, they will inevitably find that they need to tackle a wide range of other policy issues as well—competition policy, for example. We will, no doubt, find there are close, albeit complex, relationships between many different domestic, foreign trade, and investment policies in the high-technology area, including relationships between anti-dumping duties, domestic subsidies, other forms of industrial policy, rules of origin and competition policy. It seems to me, in the end, we will have to address the relationships among all of these policies and policy instruments.

There is a growing incongruity between global production methods in the new world economy and national policy instruments that assume trade is based on national production. Use of traditional trade policy tools in this new environment often creates more problems than it solves. These difficulties, along with constraints placed on the use of the more explicit trade policy tools (such as tariffs and quotas) in past trade negotiations, has induced governments to use broader domestic policy instruments to improve the competitive position of national firms. The application of domestic policy instruments in a discriminatory manner, however, creates new distortions that will have to be subjected to international discipline. In my view, we will have to rethink the goals and tools of trade policy from the ground up, and Sylvia Ostry has made a good start toward that goal in her new book on innovation policy.

III.

Policy Perspectives

Intellectual Property in a Global Village

The Honourable Flora MacDonald

When Murray Smith mentioned that I had travelled a fair distance to get here, I may tell you that I have just arrived this week from speaking on human rights issues in London, England, Hong Kong and New Zealand. So I am very conscious of the political and economic implications for a world that is rapidly becoming smaller. Wide-bodied aircraft move masses of people and goods across vast distances. Less evident, but equally important, is the expansion of communications capabilities. The proliferation of fax machines—and who would be without one?—is but the tip of the iceberg of the ongoing global revolution in telecommunications.

It was Marshall McLuhan who coined the term, "The Global Village," and he did that to characterize the impact of television on societies.[1] And, although McLuhan might be surprised at how social and cultural differences have persisted in the age of electronic communications, it is evident that the global economy is becoming a global village bazaar. Des changements révolutionnaires se déroulent sur la scène internationale. Les événements

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[1] Marshall McLuhan, "War and Peace in the Global Village: an inventory of some of the current spastic situations that could be eliminated by more feed forward" (Bantam Books, Toronto, 1968).

spectaculaires qui bouleversent l'Europe de l'est nous fascinent tous. L'effondrement du mur de berlin et la renaissance de la démocratie nous remplissent de joie, mais ils ne doivent pas nous faire perdre de vue que l'évolution de la situation européenne aura de profondes répercussions économiques et mettra au défi nos ententes économiques internationales.

It was over 40 years ago when the GATT and the Bretton Woods financial institutions were created. And Canada participated at that time with a small group of countries, of which the United States and the United Kingdom were the most important. There was no effort then to deal with intellectual property rights in the GATT rules, perhaps because the existing international conventions seemed adequate for the small group of nations involved. And, of course, the GATT was intended to be an interim arrangement, pending the creation of the International Trade Organization: but the ITO was stillborn.

Today 97 nations are members of the GATT and more are seeking to join. Two of the most recent countries to become members are Taiwan and the Soviet Union—what you might call strange bedfellows. You can imagine the differences in points of view of economies as diverse as Botswana, Brazil, Japan, Switzerland, Thailand and, particularly, on issues such as the protection of intellectual property rights. That issue came up in Canada's negotiations with the United States of our Free Trade Agreement. And in the course of those negotiations, Canada made it very clear that our cultural policies would not be subject to the negotiations. Furthermore, in the specific area of patents, we were not willing to agree to United States requests to provide greater protection to the holders of pharmaceutical patents. The two countries could agree only to continue discussions in the Uruguay Round and the GATT. However, in the absence of agreed international rules, the United States has indicated its readiness to act unilaterally under its trade laws. Because of pharmaceutical patent issues, Canada has been designated on the U.S.A. watch list of countries with inadequate protection of intellectual property rights. And, undoubtedly, concern about unilateral United States actions has prompted Canada to make its proposal to strengthen the GATT dispute-settlement process.

The differences over intellectual property issues occur not only at the international level. For example, in my previous capacity as Minister of Communications, I can recall very well the amending of Canada's copyright legislation, and the passage of the new *Copyright Act* in early 1988. These legislative changes—the first to take place in copyright legislation in 64 years—generated domestic differences, between creators and users. No doubt Mr. Blais encountered a similar diversity of views on agricultural trade matters in his previous capacity. M. Blais a été nommé solliciteur général en janvier 1989 et ministre d'État à l'Agriculture en août 1987. Il continue présentement d'occuper les fonctions de ministre d'État à l'Agriculture tout en étant ministre de la Consommation et des Corporations.

Despite domestic differences, the pace of technological change and changing patterns of global trade and investment are redefining Canadian interests and challenging our institutions.

Canadian Intellectual Property Law: Strategic Agenda for the 1990s

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The Honourable Pierre Blais, PC, MP

As some of you may know, yesterday marked the start of Canada's first National Consumer Week. My visit to Toronto is the third stop of a cross-country tour to promote consumer issues. It is a coincidence that this conference was scheduled during Consumer Week, but I think the timing is very good. Everyone who uses a product or a process that incorporates state-of-the-art technology or design is a consumer of intellectual property. And everyone who obtains information through a patent document is also a consumer of intellectual property. Tonight I'll be talking about why Canadians—particularly Canadian business—must become better consumers of intellectual property. Canadians must not only become accustomed to using intellectual property rights as a means to protect an invention or a creation, they must also use intellectual property more effectively as a means to transfer technology.

When I was reviewing my speech last weekend, I was struck by the thought that perhaps I was doing things in reverse: perhaps I should talk to this group about consumer issues, and spend the rest of the week talking to consumers about intellectual property, because that is our challenge—yours and mine—to let more Canadians know exactly why innovation must be fostered and protected. The Canadian public needs to be better informed about our intellectual property statutes and institutions. And businesses need to know how to use the intellectual property system more effectively for commercial purposes.

Because of the nature of news today, the media covers the more spectacular stories and only skims the surface of issues when reporting on intellectual property. Cartoons and stories poke fun at inventors arriving at the Patent Office with designs for oddball inventions. Yet few Canadians realise the importance of intellectual property rights in promoting the creativity and innovation that is essential to Canadian industry if it is to compete effectively in a global market.

Intellectual property protection is extremely important in today's highly competitive international marketplace. Worldwide losses that result from piracy or commercial counterfeiting are of major concern to all industrialized countries. The United States has reported losses of more than $40 billion a year.

With support from Japan, the EEC and Canada, the United States succeeded in having intellectual property issues included in the current Uruguay Round of the GATT negotiations. The Uruguay Round is the eighth major round of multilateral trade negotiations, and is expected to conclude in December. Many countries participating in the GATT talks have now tabled detailed papers on the matters they believe should be included under TRIPS.

In 1989, my colleagues John Crosbie and former Consumer and Corporate Affairs Minister, Harvie Andre, tabled a Canadian paper on intellectual property standards and international trade as part of GATT. Canada is calling for a TRIPS agreement that provides enhanced, effective levels of protection of IPRs, the removal of discriminatory practices in other countries and the assurance that Canada has access to technology from all over the world. Enhanced protection encourages innovation and, ultimately, improves our ability to compete in the global marketplace, but it has a ripple effect. Strong, clear protection leads to more trade in goods and services that spreads to job creation and other spin-off benefits in our manufacturing and service industries. These proposals complement another Canadian submission on the enforcement of IPRs. We believe that effective and non-discriminatory international rules would replace unilateral action by individual countries.

Canada has also ratified the *Patent Cooperation Treaty*, and this has enabled Canadians to file a single application in Canada to seek patent protection in all of the 43 member countries. We will continue to work with WIPO in Geneva, as well as other international organizations, to harmonize patent and trade mark laws around the world. The federal government is committed to enhancing Canadian intellectual property benefits abroad.

In Canada, the Intellectual Property Advisory Committee (IPAC) is among the sources of assistance available to us in our ongoing efforts to modernize and streamline the country's intellectual property system. The IPAC is a committee of governmental and non-governmental specialists and opinion leaders who work together to consider policy options on intellectual property issues. The committee's work to build consensus among intellectual property professionals, business and consumer groups, and governmental representatives is equally important. The IPAC, together with other specialist groups, provides additional input into the process of consultation in the intellectual property field, in which the government has been engaged for decades. As long as we're talking, there's room for progress—for developing new ideas and for refining old ones. Our experience with consultation on intellectual property issues has been positive and has achieved real progress. Our government is approaching the area of IP on three fronts: legislative change, public awareness, and automation.

I would like to take a few minutes to talk about some legislative changes and about our efforts to help the public to better understand and use intellectual property statutes and institutions. First of all, I want to announce tonight that Consumer and Corporate Affairs Canada (CCAC) is preparing an "Intellectual Property Improvement Bill" that will clear away some of the irritants and uncertainties that arise from existing IP legislation. The Bill will group amendments to a number of statutes on which there is general support for change. It is not expected to be controversial and should not tie up Parliament. The Bill will simply address a number of housekeeping measures so that our intellectual property system may run more smoothly. These changes will remove, or modernize, obsolete requirements. The overall result will be to make the IP system more user friendly for the business community and for consumers, whether as innovators or users. An end to the unnecessary paper burden and to the costly litigation related to old requirements will be among the benefits of a user-friendly system.

I referred earlier to some of the more spectacular IP issues that have attracted media attention in the past. It was not to suggest that our efforts to modernize IP statutes are never in the news. We have not forgotten the manner in which changes to the *Patent Act* dominated headlines for months during 1986 and 1987. Much of the sound and fury arose from the manner in which the Senate obstructed Bill C-22. The Senate sent the Bill back to the House of Commons twice with changes that would have undermined the purpose of the legislation. This scenario has become familiar in this session of Parliament. Plus ça change, plus c'est pareil. The amendments that made the headlines back then concerned pharmaceuticals. The *Patent Act* amendments have proven since then just how important IPP can be in promoting research and development in Canada. You may recall that, in exchange for improved patent protection, the Pharmaceutical Manufacturers Association of Canada undertook to increase its investment in R&D from 4.9 per cent of sales revenue in 1987, to 10 per cent and to create 3,000 jobs by 1996.

The first annual report of the Patented Medicine Prices Review Board tells us that the industry is on track to meet its commitments. The industry's R&D to sales ratio was raised to 6.1 per cent in 1988, from 4.9 per cent just one year earlier. Some 57 companies reported a total investment of over $160 million in research and development. The amendments to the *Patent Act* have initiated a new era for the Canadian pharmaceutical industry, and we hope and expect that these positive results will continue so that Canadians will realize the full benefits of the industry's ongoing commitments. The 1991 and 1996 reviews that were mandated by the legislation will allow us to monitor this progress.

The amendments on pharmaceuticals made the headlines, but other amendments to the *Patent Act* were equally significant. Major changes included such measures as moving to a first-to-file system and the earlier publication of patent applications, which will accelerate the transfer of new ideas to the public and stimulate further innovation. The total effect was to bring Canada into line with the majority of other industrialized nations, and to enhance the transfer of technological opportunities for Canadians.

Our government has also amended the *Copyright Act* and, in so doing, updated a piece of legislation that had not been modified in over 60 years. I want to take this opportunity to commend The Honourable Flora MacDonald for her foresight, initiative and perseverance in bringing this difficult task to completion. The original copyright legislation had been written for a world of manual typewriters and carbon copies. The legislation has been brought up to date to reflect today's world of desktop publishing and facsimile transmission and, for the first time, the *Act* grants explicit copyright protection for computer programs.

A right of payment for retransmission of broadcast programming was also included in the Free Trade Agreement (FTA). As you know, further changes are required to complete the modernization of the *Copyright Act*. My colleague, Mr. Masse, and I are preparing a package of amendments that will cover issues such as remedies, border measures, neighbouring rights, education or library and other special uses. In the past year, we have also introduced new legislation to protect emerging forms of technology. The *Integrated Circuits Topography Act* is now awaiting Third Reading in the House of Commons.[1] As well, the Minister of Agriculture has sponsored *Bill C-15, An Act Respecting Plant Breeders' Rights*, which has been reviewed by a legislative committee and is ready for Third Reading.[2]

There will likely be other changes to the IP framework, in addition to the adjustments and corrections, which could be dealt with by an "Intellectual Property Improvement Bill." Certainly, if we achieve a satisfactory TRIPS agreement as part of the GATT, the IP statutes will have to be changed so that we may meet Canada's commitments. Furthermore, to keep the laws up to date, we continue to review the need for more basic changes. For example, we are examining the possibility of amending the *Patent Act* to clarify the appropriate depositing and disclosure requirements necessary for the protection of lifeforms.

In our continued efforts to modify the intellectual property system, I know that we can count on the support of the business community, which has welcomed the modernization we have already achieved and has called for its completion. And, of course, support and enthusiasm for changes is important when proposed amendments to legislation come before Parliament.

In addition to updating and modernizing our laws, we must ensure that Canadians are better informed about the benefits of intellectual property, and we must help them to make greater use of both protection and information. Consumer and Corporate Affairs Canada intends to expand the public awareness program that it initiated a few years ago. We have already set up regional advisors in Toronto, Montreal and Vancouver and have established a network of some 50 intermediaries, who are located in every province and territory. Their job is both to educate Canadians on intellectual property and help them to obtain access to the technological information contained in over 20 million patent documents held by the Canadian Patent Office (CPO).

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[1] *Bill C-57*, the *Integrated Circuits Topography Act*, became law in June 1990.

[2] *Bill C-15, An Act Respecting Plant Breeders' Rights*, became law in August 1990.

More Canadian businesses should be making greater use of the information available at the Patent Office. Few Canadians understand that a patent is not simply a document that is filed away in a patent office. A patent office is not a huge vault where inventors' descriptions and drawings of leading-edge technologies are jealously guarded. Patents do more than grant exclusive rights in an invention, and they do more than reward the inventor for his or her intellectual work. Patents promote investment, research and development. They serve as a valuable tool for technological transfer by inducing an inventor to disclose his or her invention to business community and other researchers as early as possible. Patents also provide a way of gaining access to inventions patented by others.

It is important to note that patents represent the most extensive, technological database in the world. Companies that rely upon trade journals and specialty publications to obtain information on leading-edge technologies are selling themselves short. More than 70 per cent of all patented information and data on new technologies throughout the industrial world is available only in patent literature. Take the jet engine, for example. It was patented in Britain in 1936, but was not described in trade journals until ten years later. The punch card was patented in 1889, but it was not until 1914 that it was described outside of patent material. Patent documentation is essentially a marketplace for technology. Patents give the earliest indication of significant advances in most fields of technology. They also provide an effective summary of the current state of knowledge about a given technology, its limitations and its potential. A check with the Patent Office may save Canadian companies considerable time and effort. About 10 per cent of all research conducted in Canada is focused on solving problems that could have been resolved through a simple patent search. Canada simply cannot afford that kind of waste of R&D effort and funding.

The Japanese have been masters at using their patent system to transfer technology to their business community. Since 1904, the Japanese Institute of Invention and Innovation has helped the development of science and technology by encouraging and promoting innovation and the use of the patent system. In 1985, to meet the growing demand for patent information for its industrial sector, the Japanese established the Japan Patent Information Organization. Created as a non-profit corporation, this organization has a mandate to distribute to the public patent information both from its patent office's electronic databases and from other sources.

We are learning how to use our patent office for similar purposes and, to make it easier for Canadians to use the patent system, CCAC has embarked upon a major project to automate the Patent Office. The patent files now occupy several kilometres of shelf space in the CPO in Hull, Quebec. At present, you must visit Hull to obtain patent information, or you must employ the services of searchers who will do so. We want to make it as easy for someone from Halifax, Toronto or Vancouver to obtain information on patents, as it is now for people in the National Capital Region. The key is automating the CPO so that telecommunications links will make patent information accessible to all regions of the country. Given an automated system, general use by direct clients and patent agents would triple, and we think the use by small businesses could increase seven-fold. In Canada's drive to compete in the global marketplace, that kind of rapid and cost-efficient access to patent information will be a valuable tool for our industries. The business community needs that information to adopt and adapt new technology.

To conclude, I would like to come back briefly to National Consumer Week, which has for its theme, "Team up for a stronger marketplace—Consumers, Business, Government." Activities organized across the country focus on the importance of developing a partnership among these groups. Anyone who has had a look at the agenda of this conference will quickly realize that this partnership also applies to intellectual property.

During the conference, you will be hearing from a number of speakers with backgrounds ranging from international diplomacy to intellectual property law, from public policy to the communications industry, from academia to non-governmental organizations. In the course of the deliberations, you will examine options for a Canadian intellectual property strategy that will help our economy respond to the demands of global competition. The results of your discussions here will help the CCAC respond to the needs of both those who rely upon intellectual property to protect their innovation, and those who turn to intellectual property as a means of obtaining new ideas.

For its part, the federal government intends to live up to its responsibility in the partnership. We will continue to streamline intellectual property statutes, to modernize our IP facilities, and to pursue ways to better inform Canadians of the benefits of intellectual property. As in every producer-consumer relationship, the effective use of intellectual property will improve as all partners in the transaction understand the marketplace, how it operates, and what it has to offer. We need your help and we are looking for your ideas and advice. I wish you productive deliberations, animated discussions and a bit of fun.

Législation sur la propriété intellectuelle au Canada : stratégies pour les années 1990

L'honorable Pierre Blais, PC, MP

Comme certains d'entre vous le savez, c'était hier le début de la première Semaine nationale des consommateurs. Mon séjour à Toronto, en comptant Ottawa, est la troisième étape d'une tournée entreprise à travers le pays pour parler de questions concernant les consommateurs. C'est par hasard que cette conférence se tient durant cette semaine nationale, mais c'est une coincidence qui me plait beaucoup.

Quiconque utilise un produit ou un procédé où entre une technologie nouvelle ou un dessin industriel nouveau est un consommateur de propriété intellectuelle. Quiconque obtient de l'information grâce à un document de brevet est également un consommateur de propriété intellectuelle. Ce soir, je veux vous dire pourquoi les Canadiens, surtout les gens d'affaires canadiens, doivent apprendre à devenir de meilleurs consommateurs de propriété intellectuelle. Les Canadiens doivent non seulement prendre l'habitude de recourir aux droits de propriété intellectuelle, mais ils doivent également le faire de façon plus efficace, en tant que moyen de protéger une invention ou une innovation et d'effectuer des transferts technologiques.

En révisant mon discours, le week-end dernier, je me suis dit que je procédais peut-être à l'envers. Je me suis dit que je devrais plutôt vous parler, à vous, de questions concernant les consommateurs, et passer le reste de la semaine à parler aux consommateurs de questions reliées à la propriété intellectuelle.

Car voilà notre défi, à vous et à moi : faire savoir à un plus grand nombre de Canadiens pourquoi l'innovation doit être encouragée et protégée. Le public canadien a besoin d'être mieux renseigné sur les lois relatives à la propriété intellectuelle et sur les institutions qui en assurent la protection. Les entreprises, pour leur part, doivent savoir comment intégrer notre système de propriété intellectuelle à leurs activités commerciales.

À cause de la dynamique des communications modernes, les médias semblent avoir tendance à s'intéresser davantage aux histoires plutôt sensationnelles; ils semblent seulement faire un survol des questions de propriété intellectuelle.

La protection de la propriété intellectuelle est extrêmement importante sur un marché international où la concurrence est féroce. La piraterie ou la contrefaçon commerciale, tant sur les marchés national qu'international, causent des pertes à l'échelle mondiale et inquiètent sérieusement les pays industrialisés. Les États-Unis ont rapporté des pertes de plus de 40 milliards de dollars par année.

Avec l'aide du Japon, de la Communauté européenne et du Canada, les Américains ont réussi à faire inclure les questions de propriété intellectuelle dans la Ronde de l'Uruguay des présentes négociations du GATT. La Ronde de l'Uruguay constitue la huitième ronde des négociations commerciales multilatérales. On s'attend à ce qu'elle se termine en décembre prochain.

Plusieurs des pays qui font partie des négociations du GATT ont déposé des mémoires sur certains points qui leur paraissent importants et qui devraient, selon eux, faire partie de l'Accord sur les aspects des droits de propriété intellectuelle qui touchent au commerce.

En 1989, mon collègue, John Crosbie, et mon prédécesseur à Consommation et Corporations Canada, Harvie Andre, ont déposé un rapport sur la propriété intellectuelle et les intérêts commerciaux du Canada dans le cadre du GATT. Le Canada désire obtenir une entente qui rehausserait le niveau de protection des droits de propriété intellectuelle, qui éliminerait les pratiques discriminatoires dans les autres pays et qui garantirait au Canada un accès à la technologie mondiale.

Une protection accrue de la propriété intellectuelle encourage l'innovation et, éventuellement, augmente notre pouvoir de concurrence à travers le monde. Et cette protection aurait de nombreux rebondissements. Une protection rigoureuse et claire accroît le commerce des biens et des services, lequel génère de nouveaux emplois et d'autres effets d'entraînement dans les secteurs manufacturiers et des services.

Ces propositions complètent un autre mémoire présenté par le Canada concernant les mesures d'application des droits de propriété intellectuelle. Nous croyons que des règles internationales efficaces et non discriminatoires prendraient la place de mesures unilatérales de certains pays.

Toujours sur la scène internationale, le Canada a ratifié le *Traité de coopération en matière de brevets*, en octobre dernier. Cela permet aux Canadiens de demander le bénéfice de la protection dans les 43 pays signataires en remplissant un unique formulaire de demande ici même au Canada.

Nous continuons à travailler de concert avec l'Organisation mondiale de la propriété intellectuelle et d'autres organismes internationaux afin d'uniformiser les lois relatives aux brevets et aux marques de commerce à travers le monde. Le gouvernement fédéral est résolu à accroître les bénéfices d'une protection de ses propriétés intellectuelles à l'étranger.

Ici, au pays, nous pouvons compter entre autres sur le Comité consultatif sur la propriété intellectuelle qui nous aide dans la mise à jour et la modernisation de notre système de protection de la propriété intellectuelle.

Ce comité est constitué de spécialistes et de certains chefs de file représentant le gouvernement et le secteur privé, et se penche sur les options législatives dans le domaine de la propriété intellectuelle. Il doit également en arriver à établir des consensus parmi les professionnels de la propriété intellectuelle, le secteur privé, les groupes de consommateurs et les représentants du gouvernement.

Le Comité, de concert avec d'autres groupes de spécialistes, vient ajouter des informations dans le processus de consultation engagé par le gouvernement depuis des décennies dans le domaine de la propriété intellectuelle. Dès lors que nous continuerons à échanger, il y aura place pour le progrès ainsi que pour l'élaboration de nouvelles idées et le peaufinement des anciennes. Notre expérience des consultations en matière de propriété intellectuelle nous montre que nous avons fait des progrès très encourageants.

Le gouvernement aborde la question de la propriété intellectuelle sur trois fronts : la réforme législative, la sensibilisation du public et l'automatisation.

Je voudrais maintenant parler brièvement de certaines modifications législatives et des initiatives que nous avons prises pour aider le public à mieux comprendre la question et à mieux profiter des lois qui sont mises à sa disposition, ainsi que des institutions qui ont été créées pour lui venir en aide.

Je voudrais d'abord annoncer que mon ministère est à préparer un projet de loi visant à améliorer la *Loi sur la propriété intellectuelle*. La nouvelle législation nous délivrera de certaines épines et de certaines incertitudes qui émanent de la législation actuelle.

Le projet de loi regroupe les amendements sur lesquels tout le monde est d'accord. Nous ne craignons aucune controverse ni aucune tentative d'obstruction à la Chambre des communes. Il s'agit simplement d'adopter un certain nombre de mesures pratiques qui assureront un meilleur fonctionnement de notre système de droits de propriété intellectuelle. Les changements apportés nous libéreront de certaines exigences désuètes ou les mettront à jour.

Il en résultera un système plus facile d'accès pour les gens d'affaires comme pour les consommateurs, qu'il s'agisse de créateurs ou d'utilisateurs. On aura mis fin à la paperasserie et, ce qui est plus important, on aura mis fin aux litiges extrêmement dispendieux découlant des anciens règlements.

J'ai fait allusion tout à l'heure à des questions de propriété intellectuelle ayant retenu l'attention de la presse au fil des années. Je n'ai pas voulu dire que les efforts que nous avons déployés pour moderniser notre appareil législatif ne font jamais la manchette. Rappelons-nous que les changements apportés à la *Loi sur les brevets* ont fait la une des journaux pendant des mois en 1986 et en 1987.

S'il y a eu tant de bruit à l'époque, cela est dû à la manière avec laquelle le Sénat avait fait obstruction au projet de loi C-22. En effet, le Sénat a renvoyé le projet deux fois à la Chambre des communes, avec des modifications qui auraient compromis l'objectif même de la législation. Cela est également devenu un scénario familier de la session actuelle. Plus ça change, plus c'est pareil!

Les amendements qui ont fait du bruit à l'époque touchaient les produits pharmaceutiques. Mais les changements apportés alors à la *Loi sur les brevets* nous ont depuis démontré quelle importance peut avoir la protection des droits de propriété intellectuelle pour la promotion de la recherche et du développement au Canada.

Vous vous rappelez peut-être qu'en échange d'une meilleure protection des droits, l'Association canadienne de l'industrie du médicament s'engageait à augmenter ses investissements dans la recherche et le développement; de 4,9 pour cent de ses revenus de vente en 1987, ces investissements seront passés à 10 pour cent en 1996 et auront alors créé 3 000 emplois.

Le premier rapport annuel du Conseil d'examen du prix des médicaments brevetés nous révèle que l'industrie respecte jusqu'à maintenant ses engagements. Les fonds accordés à la recherche et au développement, en regard des ventes, ont augmenté à 6,1 pour cent en 1988, alors qu'ils étaient de l'ordre de 4,9 pour cent l'année précédente. Quelque 57 entreprises ont consacré au total plus de 160 millions de dollars à la recherche et au développement. Les amendements apportés à la *Loi sur les brevets* ont marqué une ère nouvelle pour l'industrie canadienne des produits pharmaceutiques, et nous espérons que cela se poursuivra et nous y comptons. Ainsi les Canadiens se rendront compte des avantages de l'engagement continu de l'industrie. Les révisions de 1991 et de 1996 prévues dans la législation nous permettront de vérifier cette évolution.

Les amendements proposés à la législation touchant les produits pharmaceutiques ont fait la une, mais il faut dire que d'autres amendements étaient aussi importants. Les changements majeurs concernent les droits du premier déposant et l'accélération des délais de publication des demandes de droits afin de favoriser le transfert des nouvelles idées au public et de stimuler l'innovation. Toutes ces initiatives ont amené le Canada à égalité avec les autres nations industrialisées. Elles ont permis aux Canadiens qui s'intéressent au transfert des technologies d'avoir de meilleures chances.

Notre gouvernement a également amendé la *Loi sur le droit d'auteur*, modernisant ainsi une législation qui n'avait pas été modifiée depuis plus de 60 ans. Je profite de l'occasion pour remercier l'honorable Flora McDonald d'avoir pris l'initiative de cette modernisation et d'avoir eu l'intuition et la persévérance voulue pour mener cette tâche à bonne fin. La législation originale avait été élaborée pour un monde de machines à écrire et de papier carbone. Nous l'avons adaptée aux besoins de la bureautique et de la transmission par télécopieur. Pour la première fois, une législation accorde des droits réels de propriété intellectuelle aux programmes informatiques.

Nous avons prévu également une redevance pour la retransmission d'émissions comme partie intégrante de l'Accord de libre-échange. Comme vous le savez, d'autres modifications devront être apportées à la *Loi sur le droit d'auteur* pour achever sa modernisation. Mon collègue M. Marcel Masse est à préparer tout un ensemble d'amendements regroupés sous l'appellation qui traiteront de questions telles que les recours, les mesures à la frontières, les droits voisins, l'utilisation en bibliothèques ou à des fins éducatives et autres.

Nous avons également déposé, au cours de la dernière année, des amendements conçus pour protéger les nouvelles formes de technologie. Le projet de loi C-57, *Loi sur les topographies de circuits intégrés*, va bientôt être déposé en troisième lecture à la Chambre des communes.[1]

Pour sa part, le ministre de l'Agriculture a parrainé le projet de loi C-15, *Loi concernant la protection des obtentions végétales*. Le projet a été révisé en comité législatif et il est prêt pour la troisième lecture.[2]

Il y aura certainement d'autres changements dans le système de la propriété intellectuelle en plus des ajustements et des correctifs prévus dans la loi améliorant la propriété intellectuelle. Certes, si nous réussissons à décrocher une entente acceptable en matière de droits de propriété intellectuelle qui touchent au commerce dans le cadre du GATT, il y aura des conséquences législatives en matiere de propriété intellectuelle, aux engagements du Canada. De plus, dans le but de garder nos lois à jour, nous ne cessons de les réexaminer soigneusement. Par exemple, nous examinons la possibilité de modifier la *Loi sur les brevets* afin de déterminer les exigences pertinentes requises lors du dépôt et de la divulgation nécessaires à la protection des formes de vie.

Dans la modernisation de notre système de propriété intellectuelle, nous savons que nous pouvons compter sur les gens d'affaires. Cette communauté a accueilli avec enthousiasme le rajeunissement que nous avons déjà réalisé, et elle veut voir la tâche terminée. Lorsque vient le temps de déposer nos projets devant le Parlement, cet appui est essentiel.

En plus de rajeunir nos lois et de les mettre à jour, nous devons veiller à ce que les Canadiens soient mieux renseignés sur les avantages de la propriété intellectuelle, et nous devons les aider à mieux profiter de la protection et de l'information. Mon

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1. Le projet de loi C-57, Loi sur les topographies de circuits intégrés, a été adopté en juin 1990.

2. Le projet de loi C-15, Loi concernant la protection des obtentions végétales, a été adopté en août 1990.

ministère entend donner de l'expansion au programme de promotion déjà mis sur pied il y a quelques années. Nous avons déjà des conseillers régionaux à Toronto, à Montréal et à Vancouver. Nous avons également établi un réseau de quelque 50 agents dans toutes les provinces et territoires.

Ces représentants doivent renseigner les Canadiens sur les droits de propriété intellectuelle, et doivent également les aider à obtenir l'accès à l'information technologique contenue dans les 20 millions de documents de brevets et plus que possède le Bureau canadien des brevets. Les entreprises canadiennes devraient profiter davantage de cette énorme source de renseignements.

Trop peu de Canadiens comprennent qu'un brevet est plus qu'un simple document rangé dans un dossier. Et un bureau de brevets n'est pas qu'un immense coffre-fort où sont jalousement conservés des dessins ou des descriptions d'inventions à la fine pointe de la technologie. Un brevet fait bien davantage que d'accorder des droits exclusifs à un inventeur ou de le récompenser pour sa créativité intellectuelle. Un brevet encourage l'investissement, la recherche et le développement. C'est un instrument qui favorise le transfert technologique en incitant l'inventeur à faire connaître son invention à la communauté des affaires sans délai. Un brevet, c'est également un moyen d'avoir accès aux inventions créées par les autres.

Il importe de noter que les brevets constituent la plus importante banque de données technologiques du monde. Les entreprises qui se fient aux journaux et aux publications spécialisées pour se tenir au fait des progrès technologiques se leurrent. Plus de 70 pour cent de l'information relative aux nouvelles technologies à travers le monde industrialisé demeure exclusivement enfermés dans les documents de brevets. Prenons le moteur d'avion à réaction. Ce moteur a été breveté en Grande-Bretagne en 1936, mais la description de l'engin n'a été rapportée dans les journaux que dix ans plus tard. La carte à poinçon a été brevetée en 1889, mais elle n'a été décrite publiquement qu'en 1914.

Les documents de brevets ne représentent au fond qu'un marché de la technologie. Les brevets donnent un premier aperçu de l'évolution dans la plupart des domaines technologiques ainsi que sur la situation actuelle, sur les limites et sur les possibilités d'une technologie donnée.

En consultant le Bureau des brevets, les entreprises canadiennes épargneront temps et énergie. Environ dix pour cent de la recherche effectuée au Canada est perdue à résoudre des problèmes qui ne seraient pas survenus si on avait consulté d'abord les documents de brevets. C'est une perte d'énergie et d'argent en recherche et développement que le pays ne peut pas se permettre.

Les Japonais sont passés maîtres dans l'art d'utiliser leur système de brevets pour effectuer des transferts technologiques à leurs entreprises. Depuis 1904, l'institut japonais de l'invention et de l'innovation contribue au développement de la science et de la technologie en encourageant et en favorisant l'innovation et l'utilisation du système de brevets. En 1985, afin de répondre à la demande croissante du secteur industriel, les Japonais ont mis sur pied un organisme d'information sur les brevets. C'est un organisme à but non lucratif qui a pour mandat de diffuser les renseignements contenus dans ses banques de données de même que l'information provenant de toute autre source.

Nous sommes en train d'apprendre à utiliser notre bureau des brevets à des fins analogues. Afin de rendre notre système plus accessible à l'ensemble des Canadiens, Consommation et Corporations Canada a entrepris la tâche d'automatiser son Bureau des brevets.

Les dossiers occupent présentement des kilomètres de tablettes dans nos locaux de Hull, Québec. Pour obtenir des renseignements, il faut donc s'y rendre ou retenir les services de recherchistes qui vont eux-mêmes s'y rendre.

Nous voulons que ce soit aussi facile pour une personne qui habite Toronto, Halifax ou Vancouver d'obtenir des renseignements sur des brevets que cela ne l'est pour une personne qui habite la région de la Capitale nationale. La clef c'est d'automatiser le Bureau des brevets de manière à faire en sorte que les télécommunications abolissent les obstacles géographiques.

Lorsque cela sera réalisé, l'utilisation directe du système par les agents et les clients triplera. Nous estimons que l'utilisation du système par les petites entreprises augmentera, quant à elle, de 700 pour cent.

Dans le contexte des efforts que déploie le Canada pour être compétitif sur le marché mondial, cette source de renseignements rapide et bon marché deviendra un instrument efficace pour nos industries. Notre secteur privé a besoin d'un tel outil pour intégrer les nouvelles technologies et pour innover.

Je voudrais en conclusion revenir brièvement sur la Semaine nationale des consommateurs dont le thème est "Faisons équipe pour un marché dynamique : consommateurs, entreprises, gouvernements". Les activités qui ont et auront lieu durant la semaine dans toutes les régions du pays montreront l'importance de créer un partenariat solide entre ces trois groupes.

Il suffit de consulter l'ordre du jour de cette conférence pour constater combien ce partenariat vaut également en ce qui a trait à la propriété intellectuelle.

Durant cette conférence un certain nombre d'orateurs se présenteront devant vous. Certains viendront du monde de la diplomatie internationale, d'autres du monde législatif, de l'industrie des communications, du milieu universitaire et d'autres enfin du secteur gouvernemental. Tout au long des discussions vous vous pencherez sur la stratégie à adopter en matière de propriété intellectuelle, dans le but de permettre à notre industrie de faire face à la concurrence mondiale.

Les résultats de vos délibérations aideront mon ministère à mieux répondre aux besoins des personnes qui se fient aux droits de propriété intellectuelle pour protéger leurs créations et de celles qui se fient aux documents de brevets pour trouver de nouvelles idées.

Pour sa part, le gouvernement fédéral entend respecter ses propres obligations dans les projets de partenariat. Nous allons continuer de moderniser nos lois relatives à la propriété intellectuelle et de moderniser nos services. Nous mettrons au point de nouveaux moyens afin de mieux renseigner les Canadiens sur les avantages des droits de propriété intellectuelle.

Comme dans tout rapport fabricants/consommateurs, l'utilisation efficace des brevets s'améliorera au fur et à mesure que tous les intervenants concernés comprendront mieux le marché, les lois qui le régissent et les avantages qu'il offre.

Nous avons besoin de vos idées et de vos conseils. Je vous souhaite des discussions utiles et animées de même qu'une réunion agréable.

IV.

Intellectual Property and the Bottom Line: Business Strategies

Concurrence mondiale et propriété intellectuelle : Le développement de stratégies canadiennes

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Roch Brisson

Nous tenterons de cerner aujourd'hui les stratégies que doivent adopter les petites et moyennes entreprises (PME) en vue d'effectuer des transferts de technologie ou de la recherche et développement (R-D), stratégies qu'influenceront le développement de politiques tant québécoises que canadiennes en ce qui concerne la concurrence mondiale et la propriété intellectuelle. Aussi bien le transfert de technologie que la R-D s'inclue dans la stratégie de croissance d'une entreprise, de la même façon que les éléments de propriété intellectuelle doivent faire partie de la stratégie de développement de cette entreprise. Une entreprise ne doit pas effectuer des transferts de technologie parce que c'est un sujet à la mode ou les effectuer comme elle procède habituellement pour les achats d'équipements.

Je vais surtout vous parler des PME, puisque la structure industrielle du Québec est composée à 80% de petites et moyennes entreprises et que celles-ci sont la clientèle à sensibiliser aux éléments de propriété intellectuelle. Les grandes firmes (les multinationales) font déjà de la R-D ou bien sont impliquées dans des transferts de technologie, ce qui contribuent à ce qu'elles soient actives dans la gestion des droits de propriété intellectuelle.

Au Canada, les résidents ne détiennent que 8% des brevets, le solde appartenant à des étrangers. Extrapolé quant aux titulaires de brevets, ce constat, nous permet d'affirmer que le Canada génère environ 7,4% de l'innovation technologique réalisée par les pays industrialisés. En ce qui concerne le Québec, le ratio est de 1,2%.

Nous pouvons donc facilement en déduire que les industries, tant québécoises que canadiennes, investissent peu en R-D, et surtout que leurs innovations ne sont pas protégées ou le sont de façon inadéquate. Ce phénomène n'est pas dû à un manque d'esprit innovateur; au contraire, toutes les études et analyses démontrent que nos industriels sont très innovateurs. En fait, il découle d'une méconnaissance générale des éléments de propriété intellectuelle qui sont présents tant au niveau de la R-D qu'au niveau des transferts de technologie. Cette méconnaissance se vérifie quotidiennement par les notions populaires présentes dans le milieu industriel en ce qui a trait aux brevets, à savoir : un brevet se contourne et se copie facilement et certains vont même jusqu'à affirmer que copier, c'est une saine compétition. De plus, nos industriels remettent souvent en question la procédure de demande de brevet, la jugeant trop longue et trop coûteuse pour la protection conférée.

La propriété intellectuelle doit donc devenir un facteur de la stratégie de croissance des PME d'où l'importance pour les industriels de se familiariser avec ces notions de droit, surtout dans le contexte de la mondialisation des marchés. Il suffit de mentionner l'accord de libre-échange Canada/États-Unis, la C.E.E. de l'Europe 92, et on va bientôt parler aussi du bloc asiatique et d'un accord de libre-échange Canada/États-Unis et Mexique.

Comme les Européens, les Japonais et les Américains ont appris à composer avec ces notions de propriété intellectuelle, les industriels canadiens doivent aussi apprendre à le faire. L'internationalisation des marchés oblige de plus en plus les industriels québécois à effectuer des transferts de technologie par le biais d'accords industriels. En effet, en raison de la taille de leurs entreprises, ceux-ci sont peu nombreux à s'impliquer dans des programmes de R-D. Mais, ces formes de transactions impliquant des droits de propriété intellectuelle sont cependant méconnues de nos industriels. Il faudra donc les former par diverses actions de sensibilisation.

Dans un premier temps, il faut susciter auprès d'eux l'esprit d'analyse et de positionnement stratégiques dans la gestion de la ressource technologique. Ceci ne peut être réalisé que par l'acquisition d'une culture technologique efficiente faisant preuve d'une mentalité d'ouverture sur le monde technologique international et d'un sens de l'opportunité technologique.

Or, comme ces notions doivent reposer sur une stratégie de croissance et de développement de l'entreprise, cela laisse à l'industriel quatre options pour réaliser et concrétiser cette stratégie.

Avant d'examiner ces quatre options, mentionnons que la planification stratégique présuppose de :

- bien définir la mission de son entreprise
- bien définir ses objectifs
- préparer un plan d'action.
- En outre, il faut bien connaître :
  - ses clients et leurs besoins
  - ses compétiteurs et leurs produits
  - ses forces et ses faiblesses.

De plus, il faut vérifier :

a) la disponibilité de la technologie existante
b) la disponibilité de l'expertise (interne ou externe) pour développer ou adopter une technologie
c) la capacité d'absorber la technologie
d) les coûts et les contraintes de l'achat d'une technologie
e) les avantages et les risques reliés à l'achat d'une technologie ou à son développement.

Les quatre options sont :

1) Pénétration du marché
   - amélioration des procédés existants par :
     a) le développement technologique et/ou
     b) l'achat d'une licence, d'un procédé, d'un logiciel, etc.
   - amélioration de l'image par l'achat d'une marque de commerce.

2) Développement de marchés
   - vente de produits directement ou par intermédiaire
   - installation d'une succursale ou d'une filiale à l'étranger
   - partenariat, soit par :
     a) "joint-venture" et/ou
     b) vente de licence (brevet, marque de commerce, etc.).

3) Développement de produits
   - acquisition de produits par :
     a) le développement technologique (dépôt de brevet, marque de commerce, etc.)
     b) l'achat d'une licence de produit et savoir-faire.
4) Diversification
   - toutes les stratégies s'appliquent.

Les industriels ont donc deux choix pour développer des marchés ou pour développer et acquérir de nouveaux produits. Ils peuvent y parvenir par la R-D ou par le transfert de technologie. Que l'on choisisse l'un ou l'autre de ces moyens pour accroître son entreprise et diversifier ses marchés ou ses produits, cela implique des droits de propriété intellectuelle.

Dans le cadre de la libre concurrence mondiale, l'entreprise doit agir, car on considère que pratiquer l'immobilisme c'est déjà régresser. De plus, on se trouve également dans un contexte de mutation des produits et des marchés et tous reconnaissent que le changement est la caractéristique principale de notre époque. L'industrie doit faire face à la situation actuelle et à ses particularités : une diffusion de plus en plus rapide des innovations et de leur application industrielle, un cycle de vie des produits qui ne cesse de raccourcir (l'espérance de vie des produits diminue et ils deviennent rapidement désuets), et une concurrence qui réagit de plus en plus rapidement aux innovations de l'entreprise. Pour concrétiser sa stratégie de croissance, l'entreprise a le choix entre la R-D et le transfert de technologie, chacun ayant ses avantages et ses inconvénients et chacun impliquant des droits de propriété intellectuelle.

Les avantages de la R-D peuvent se résumer ainsi : une compatibilité de la recherche avec ses propres besoins qui permet à l'entrepreneur d'acquérir une indépendance technologique et une possibilité de vendre la technologie acquise; on en revient donc aux profits potentiels de la propriété intellectuelle. Celle-ci protège les résultats de la recherche en assurant un monopole d'exploitation à son propriétaire, mais elle permet également de percevoir des droits d'exploitation et donc d'obtenir un retour sur les investissements en R-D. Il existe évidemment des désavantages liés à la R-D : risques plus élevés, coûts souvent prohibitifs et temps de réalisation plus long. Ceci explique le rôle prédominant des grandes compagnies, des grandes multinationales, dans la R-D et dans l'utilisation des droits de propriété intellectuelle.

L'autre choix laissé à l'industriel, le transfert de technologie ou l'achat de technologie, permet une rentabilité à court terme et une réaction plus rapide à la concurrence. De plus, le transfert de technologie coûte moins cher et comporte moins de risques que la R-D. Néanmoins, il comporte certains désavantages : augmentation de la dépendance technologique et comme ces technologies sont déjà connues, et la plupart du temps, déjà utilisées, elles sont vite dépassées.

La décision pour un industriel de faire de la R-D ou du transfert de technologie est liée à sa capacité interne et à la disponibilité de la technologie. Pour l'un comme pour l'autre choix, la propriété intellectuelle viendra accentuer l'augmentation des profits ou la diminution des coûts.

J'ai essayé de démontrer que les industries québécoises et canadiennes, surtout au niveau des PME, n'ont plus le choix et qu'elles doivent aller de l'avant avec selon leurs capacités des programmes de R-D ou de transfert de technologie. Mais avant de se décider pour l'un ou l'autre de ces choix, l'industriel doit les envisager en tant que gestionnaire.

Étant donné notre structure industrielle, nous considérons donc la gestion du transfert de technologie comme suit :

1) Une bonne gestion de l'avoir technologique signifie :
    a) connaître son avoir technologique
    b) évaluer de façon continue cet avoir
    c) planifier des actions visant à enrichir et exploiter cet avoir, et ce en accord avec la stratégie de développement de l'éntreprise (marketing—production, personnel, finance, etc.).
2) Pourquoi gérer sa technologie :
    a) pour optimiser ses investissements en recherche et développement et en acquisition de technologie
    b) pour développer et maintenir une avance technologique et/ou des avantages concurrentiels sur ses marchés.

Donc, il faut établir un diagnostic et une stratégie technologiques de l'entreprise :

1) Analyse des forces et des faiblesses de l'entreprise en matière de *technologie*.
2) Évaluation du *savoir-faire technologique* de chacune de ses activités.
3) Étude comparative des *technologies* utilisées par la concurrence.

4) Analyse des répercussions de l'évolution technologique de l'entreprise.
5) Élaboration d'un plan d'action technologique.

Il faut ensuite repérer, choisir et acquérir cette technologie. Et pour cela, la P.M.E. doit :

1) Décrire et repérer la technologie recherchée.
2) Évaluer les diverses options offertes.
3) Choisir une technologie et un fournisseur.
4) Négocier l'achat, la cession et le transfert de cette technologie.

Puis, il faudra procéder au transfert, à l'adaptation et à l'implantation de la technologie, donc :

1) Adapter la technologie au contexte de l'entreprise.
2) Intégrer la technologie aux activités de l'entreprise.
3) Établir un plan et un échéancier d'implantation.
4) Étudier les effets organisationnels et socio-professionnels de ce transfert.
5) Évaluer les besoins de formation du personnel de l'entreprise.
6) Faire homologuer les équipements et certifier les produits.

L'industriel en possession de ces informations pourra analyser ces facteurs externes et les intégrer dans le contexte de son entreprise. Il pourra prendre une décision éclairée, en tenant compte des capacités techniques, financières et de mise en marché de son entreprise.

En conclusion, les PME doivent donc se familiariser avec les droits de propriété intellectuelle. Non seulement doivent-elles les considérer dans une optique défensive, c'est-à-dire de protection de leur marché, mais encore, pensons-nous, dans une optique offensive, c'est-à-dire d'expansion de leurs produits et marché intégrant la propriété intellectuelle à leur stratégie de croissance. Les différents paliers de gouvernement du Canada se doivent de mettre en place rapidement les incitatifs nécessaires à cette double approche d'utilisation de la propriété intellectuelle comme facteur important de développement économique.

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The Impact of Patent Policy on the Corporate Bottom Line

Douglas James

When I was asked to give a talk at this meeting, I looked at the rest of the program, and was not sure whether I could usefully contribute. On reflection, I decided that, perhaps, I can bring the views of someone who is a consumer of such policies and who sees both the good and bad in them. I intend to focus on patents, and talk about how a medium-sized, high-technology company interacts and deals with the world of patents. Patents can be frightening in some cases, and a great opportunity in others. They can be a significant strategic weapon to a company; they can also put companies out of business!

Patent policy is a very important part of the strategy of any company. Patent policy, whether it is formal or informal, written or unwritten, is critical to the success of a technology company. R&D, entered into without knowledge of the patent literature, can be totally wasted. The defence of patent infringement is costly, both in terms of dollars and in resources. If a company becomes a defendant in a patent action, the most experienced people in the company stop doing anything else, while they deal with that situation.

On the positive side, patent awareness can give you a very good view of your competitors' strategy. Patent issues are always business-judgment issues, and if you have a patent policy, you should make it visible throughout your organization because it affects the way people do business.

To put these things into perspective, let me give you a brief profile of the company I work for, Lumonics Inc. It was founded in 1970 to commercialize a Canadian invention at the Defence Research Establishment at Valcartier (DREV). This invention (a transversely excited, atmospheric pressure CO_2 laser, or TEA CO_2 laser) was a very significant invention, where Canada led the world. Lumonics licensed the invention and developed products for both the scientific research market and for industrial markets. A significant example of the latter is the use of lasers to mark Coca Cola bottles, cosmetic packages and integrated circuits. Lumonics became a public company in 1980 and then entered into a period of acquisition of other companies in the laser industry, acquiring one company in the United Kingdom, three companies in the United States and, earlier this year, another Canadian company. For a company that still has to achieve $100 million a year in revenues, we perform R&D and manufacture lasers and systems in five locations and we have approximately 650 employees worldwide. In essence, we have created a multi- or transnational company of modest size.

What has happened to Lumonics in the field of patents through it's history? At the beginning, it was a licensee of Canadian Patents and Development Limited (CPDL) for the original DREV and, later, National Research Council (NRC) patents. Being a licensee to a governmental agency sounds very good. However, if people set about infringing on that patent, non-ownership constrains the company. One is relying on other people to get into the fight, and that's not always easy to achieve.

As the company developed, we filed a small number of patents on internal developments. Most of them were owned by the Crown, due to governmental support of our R&D, and were licensed from CPDL. In 1978, we became the defendant in a number of actions for infringement of a patent. Some of you may have heard of the famous "Gould" laser patents. It's a good example of the complexity and diverse interpretations of patents in different jurisdictions.

Gordon Gould, an American, started his patent quest in 1959. Basically, he claimed to have invented the laser. However, the United States Patent Office (USPO) disagreed, at least initially, and they issued the fundamental patents for lasers to others. However, the Canadian Patent Office issued what I would describe as an omnibus Gould patent in 1972; this was a combination of three or four patents that had been filed individually in the U.S.A. The USPO finally granted patents to Gould in 1977 and 1978 (some 18 years after his original efforts). But that wasn't the end of the story: the USPO then decided to re-examine the Gould patents in 1983. At this time, Lumonics was the defendant in lawsuits in Chicago and in Canada. The USPO rejected the patents. The owners of Gould's patents, including Gordon Gould himself, appealed and eventually the decision was overturned. The patents were re-issued in 1987 and shortly afterward another Gould patent that dealt with the use of lasers in many applications was issued. The existence of a Canadian patent had a significant impact on Lumonics. It allowed the company to be sued with respect to an already issued patent and, not surprisingly, the defence of this action was very expensive. The outcome (which is not unusual in any patent battle) was an out-of-court settlement in 1987. Lumonics became the first major laser company to license the Gould patents. Of course, the out-of-court settlement doesn't reflect our opinion of the validity or otherwise of these patents. The outcome of patent suits often is settlement because it's very uncertain what would happen in court—finding a judge and jury that would understand the complexity of patents can be difficult. Lumonics continues to acquire patents both by acquisition of companies and through our own efforts. In 1989, we finally decided that we needed a formal patent policy, and this is now in place.

Patent policy for a company is very dependent on the structure of the industry in which it operates. Apart from the resolution of the Gould situation, 1987 was an interesting year because the laser industry changed significantly. Until 1987, the laser industry consisted of small companies. The largest, Spectraphysics Inc. (a U.S.A. company) had sales of about $200 million, and Lumonics was the third largest laser company in the world. In 1987, however, Spectraphysics was acquired by Ciba Geigy, a major Swiss pharmaceutical company—they have recently announced their intent to divest the company after 3 years of ownership. AMOCO (the oil company) also entered the laser business. Finally, Siemens (the West German electrical company) entered the laser business by acquiring some laser companies, and there were signs of a significantly increased Japanese presence.

The fact that in Europe and Japan there is a very significant governmental effort to ensure that laser technology (regarded as a strategic technology) is well supported at the R&D stage also must be considered. The MITI programs in Japan and the Eureka programs in Europe are investing a great deal of money into this technology. As if that were not enough, looking to the future, we could see a technology discontinuity appearing on the horizon. Semi-conductor laser diodes, which you all use now, no doubt in CD players, are being developed to increasingly higher powers and will displace many of the current laser technologies used in industrial applications. When you put all of these factors together back in 1987, it suggested that the laser industry was undergoing a fundamental change and that it would likely turn into an industry that was dominated by a few major players who were capable of taking a long-term view of this strategic technology.

Lumonics, as a public corporation in Canada, was required to take a very short-term view of performance and, as a result, we explored strategic partnering options. This led to the acquisition of Lumonics by Sumitomo Heavy Industries of Tokyo in 1989. Sumitomo Heavy Industries, with sales of approximately $3 billion per year, is part of the Sumitomo group. This satisfied our view that to be a player in the laser industry of the future, one had to become one of the few major players with very substantial assets and a very long-term view of the business.

Let me return to patent policy. How does a company decide what its policy should be? It's going to depend upon the size and the attitude of the industry to patents. The companies that are moving into our industry are all known to be very patent conscious. The size of your own company is also very important. It is often said that patents are only worth the money you are prepared to spend on defending them. It is also often said that patent law is not particularly helpful to very small or medium-sized companies.

The nature of the technology is another issue, whether you are dealing with new or emerging technology, mature technology, etc. Finally, your patent policy depends on your own business judgment. You have various options in patents: you can patent everything; you can patent selectively; or you can have a policy of run fast (in other words, don't patent anything, just keep ahead of everyone). Some companies do that. You have to decide whether you intend to licence your technology to others and/or licence technology from others. The interesting thing about all of these options is that they all require a very good knowledge of patent law and how patents work. It is not enough to say that we are going to run fast; therefore, we do not need to know about patents. Unless you do know a great deal about patents, that decision can lead to surprising and often disastrous results.

The question "why patent?" can be answered as follows: you can protect your R&D investment, and you can inhibit (*inhibit* not stop) copying; it can give you a technical lead, a marketing advantage; it's a valuable asset and it can give a company prestige. So why not patent everything? The simple answer is cost, both in terms of dollars and resources. If you are going to have an aggressive patent policy, with significant activity on patenting inventions, you need your best talent working on that. A small company may not be able to divert sufficient effort into this activity. Also, when you patent an invention in some jurisdictions, a great deal about what you are doing becomes public knowledge. If you are in business where products have a very short lifetime, the patent process takes too long and it may be totally irrelevant to you if it is not granted until the time when you have not only developed the product, but have also phased it out.

Process patents are very difficult to police. Your alternative to not patenting everything is secrecy, which is not that easy to enforce, and publication to prevent others from patenting your invention. That differs from country to country—there are several international issues, and different rules among various countries add cost and complexity that can impact your decision as to whether to patent or not. Let me give you a few examples: one patent that our United Kingdom subsidiary filed was issued in the U.K. in 1982; it was filed in the U.S.A. in 1979 and issued in 1981; in Japan it was filed in 1979 and is still pending. There are different interpretations of what is patentable.

In the United States, priority is given to the "first to invent"—that was a key issue in the Gordon Gould case—everywhere else it's , generally, "first to file." In terms of the novelty of inventions, "not disclosed in public" is the rule in most jurisdictions; in the U.S.A., it's "not used in the U.S.A." Such differences make life for a small, multinational, technology company very complex. Introducing a new product that has been developed in Europe must be done with a knowledge of all of these laws, if you wish to patent that invention in the U.S.A.

Let me conclude by saying that in our own industry, we have seen an evolution to the point where industrial players are very patent conscious. Therefore, we have little choice except to be patent conscious as well. Patents are much more meaningful now that we are part of a $3 billion corporation. Technology discontinuities, such as the one I mentioned earlier, open up opportunities for acquiring key patents. An aggressive approach to patenting can certainly stimulate innovation, but you need to be a certain size before you can do it properly. To run a patent policy within Lumonics requires that we have patent review committees in five locations and, as I keep repeating, you need your best people involved if it is going to be effective.

I have a few suggestions for the people who are setting policy. Harmonization of patent laws would very positively impact the complexity and cost of managing IPRs in a company such as ours. Crown ownership of inventions developed on governmental contracts, or with governmental support, complicates the issue. That's not to say there is any problem with paying royalties to the Crown, but managing the patents themselves is very, very important. Finally, thinking back to the days when we couldn't afford to have sufficient resources for our patent management, proactive governmental assistance in patenting (both in terms of dollars and advice) could be extremely beneficial to companies starting up.

Intellectual Property—How It Interacts with a Company's Bottom Line

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George E. Fisk

Reducing the Costs and Increasing the Benefits

Douglas James has given you an object lesson about how one company's awareness of intellectual property has evolved.

This story is, unfortunately, very typical. It is perhaps more extreme than most, in that most companies that are threatened settle, and are, therefore, not sued. Also, it has a more positive aspect than some situations, in that many companies do not have large parents to fall back upon.

In my talk, I shall look at how IP generally affects the bottom line of a company—the "ABC Company." I will discuss both the costs and potential profits involved.

The costs involved with IP are:

- the cost of finding out what IP might be applied against ABC Company, and assessing the likelihood of it's being applied—I call this "preventive maintenance;"
- the cost of settling or defending a lawsuit when preventive maintenance was not applied or was insufficient;
- the cost of identifying and protecting industrial property belonging to the ABC Company.

Preventive Maintenance

Every time ABC Company develops a new product or changes an existing product, it should have a patent search done to see whether the company is infringing someone else's patents. Ideally, this patent search should be done in every country where the company intends to sell the new or changed product. Having said this, I now hasten to add that in most cases it is practically impossible to search in an adequate or cost-effective way. The patent searches are carried out in the files of Patent Offices in the various countries. These files are classified according to subject matter. However, all countries use the same classification system.

The efficacy of any search depends on the skill of the person conducting the search, his familiarity with the subject matter, his familiarity with the indexing system of the country where the search is being carried out, and the accuracy of that country's indexing system, as well as the completeness of its files. The accuracy of the indexing system can present quite a serious problem. In Canada, for example, there are over 30,000 applications filed every year, yet there are only 13 professionals within the Patent Office responsible for classifying patents according to subject matter and cross-referencing the patents as necessary. These professionals also keep the classification system up to date and reclassify any applications where the scope of protection changes between the time the application is filed and the patent is issued. Classification errors occur because the staff is spread so thinly.

A further problem arises when a particular product has two, three, or more aspects that might conceivably be patentable. Each of these, then, has to be searched separately and, as I mentioned, a separate search has to be carried out in each country where the product will be sold.

Large companies have organized "patent clearance" procedures, to handle this type of search. However, a product of reasonable complexity could incur as high as $5,000-$15,000 to do an adequate search for North America. Many small companies cannot afford this expense.

Fortunately, the computer has afforded a partial solution to this problem. A computer database that searches patents from most major countries is available. It is possible to do a search by computer that reviews patents and published applications from the United States, Canada, Japan, Europe, the Soviet Union and a few other countries. This search cannot be definitive with respect to possible infringement because it searches only a brief abstract of the patents, whereas a full infringement study would review the patents themselves and the patent claims in detail. However, a competent searcher can review patents relating to an average product (containing several inventive ideas) for only a few hundred dollars. This search is likely to find the most relevant patents. Copies of these patents can then be obtained and reviewed. It is, of course, wise to do a manual search as well (at least in the most important markets) if the company can afford it, but a computer search is much better than nothing.

After the search is completed, all relevant patents will have to be considered in detail, and their claims will have to be studied by a patent attorney. Often, infringement can be avoided before it ever occurs, by appropriately redesigning the product. Alternatively, if a patent poses an infringement problem, an investigation can be initiated to see whether there is a good basis on which to invalidate it. Then, a decision can be made as to whether to proceed with the product, having a full appreciation of the patent risk involved.

In trade marks, a computer search can be carried out for marks that do not have design or logo components. This has to be done on a country-by-country basis, but it is quite inexpensive. Canadian and United States searches, together, are unlikely to cost more than $300-$400. It is advisable to cross-check by a manual search, and it is necessary to do a manual search if the mark is a logo or design. However, even with logos, the total searching costs for the U.S.A. and Canada should be well under $1,000.

Thus, it is relatively simple for the ABC Company to see if there is a prior registered trade mark or trade mark application for the mark that it wishes to obtain. There is still an element of uncertainty, as some trade mark rights can be acquired through prior use or, in certain circumstances, from the filing of an application in another country that is a member of a treaty to which Canada belongs. These situations would not be picked up by a trade mark search, and could provide an unpleasant surprise later. However, the search does considerably reduce the area of uncertainty.

You will see from the foregoing that relatively cheap computer searches are available in both the patent and trade mark fields. Companies should carry out these searches whenever they bring out a new product, or appreciably change an existing product. The costs are low enough for almost any company to be able to afford at least a basic search, and this is likely to identify problems before they become both embarrassing and expensive.

There is one other aspect of preventive maintenance that companies do not often consider. If a new employee is hired away from a competitor, that employee may well have ongoing obligations not to disclose the competitor's trade secrets or confidential information. Thus, ABC Company should discuss any potential problems with each new employee, and should get its lawyer involved if the employee's activities could breach some previous obligation.

If the Company is Sued

It is hard to give any general comments on threats of suit or actual law suits because each one is different. However, there are always three things to look at. These are the strength of the intellectual property right, the strength of the entity asserting that right, and the previous history of that entity.

Merely because someone has a patent or trade mark does not necessarily mean that that patent or trade mark is valid. When the Patent Office issues a patent, they do a search and attempt to find any prior patents that are pertinent. However, a patent can be invalidated by use or publication that never resulted in a prior patent, and would not normally come to the attention of the Patent Office. Further, published documents or patents from foreign countries, which again are unlikely to come to the attention of the Patent Office, can be used to invalidate a patent. Because of the problems in classification, even some patents issued by the same Patent Office may not have been considered by it when deciding to issue a new patent.

A further thing that should be looked at in considering the strength of the right is whether the patent in fact does prevent ABC Company from carrying on business. It may well be that the patentee is adopting an unreasonable interpretation of the breadth of his patent, and that ABC's product does not infringe or can be rendered non-infringing by a little redesign work.

The relative strengths of the parties and whether they are in competition is also important. A company that is not in direct competition with ABC Company is more likely to reach an amicable settlement than a major competitor. Further, a small competitor that does not have the resources to carry on an expensive lawsuit will be more likely to reach a settlement than a large competitor.

The reputation of the opposing party in the industry should also be considered. Some large companies have a reputation for being quite reasonable in seeking out a constructive settlement when somebody infringes their patents. Others are very prone to litigate. Before ABC Company approaches a patentee to see whether a settlement is possible, it is a good idea to find out what the patentee's reputation is.

If ABC Company is small or medium-sized, it should try to settle where possible because intellectual property lawsuits are quite expensive. For example, a patent suit that goes through to trial in Canada will cost at least $100,000 and a trade mark lawsuit will cost at least $25,000. In the United States, minimum costs are double to triple this amount. There is, therefore, a strong incentive to settle, unless there is a clear basis on which the opponent's patent or trade mark can be invalidated or shown not to be infringed, or unless there is a need to demonstrate to the industry that ABC Company will not be pushed around.

Protecting ABC Company's Industrial Property

Many small and medium-sized companies are based on technology. The advantage they have over their competitors is having a product that their competitors do not have. If the product cannot be protected, then they will lose any advantage that they have, and may either stagnate or go bankrupt.

The beginnings of protection of industrial property start in ABC Company's relations with its employees. There should be invention agreements with any employees who are likely to invent as part of their work. These agreements will make it clear that the inventions belong to the company and not to the employees. Further, any employees who are exposed to the company's confidential information or trade secrets should have a trade secret agreement that governs what they can do with this information. Employees should be sensitized to the fact that their disclosure of a new product or process would prevent patenting of that product or process in most countries.

It is also necessary for the managerial personnel of ABC Company to have a basic idea of what types of IP exist, and what general sorts of subject matter they protect. This should be part of the general knowledge of all managers. Those who manage in areas with a particular exposure to certain types of IP should have a more detailed knowledge of those types. For example, managers should be able to identify whether there is any secret information in the areas that they manage, and what legal steps need to be taken to preserve the secrecy of that information as a trade secret. Anyone whose area of responsibility within the company may give rise to inventions should have an idea of when such inventions should be kept as trade secrets, and when they should be patented. Similarly, anyone in research should have a knowledge of the patenting process.

Managers who deal with marketing or sales should have a detailed knowledge of trade marks and trade names, and should recognize when something should have industrial design protection. Further, they should be aware of the copyright aspects of their Company's brochures, advertising company and manuals.

When I suggest that an executive should be aware of an area of intellectual property, this has two aspects. It is, of course, important that the executive be able to recognize things within his area of business that can and should be the subject matter of IP protection. However, it is equally important that he be aware that activities of the company can infringe on the IPRs of others. He should be able to recognize those activities that could pose dangers, and should at least be able to make an initial assessment of the danger.

You will note I have said that all of the executives should be aware of potential issues, but I have not suggested that they should be given authority to do something about it. Obviously, if each executive could go ahead and manage his area's intellectual property without any check on spending, bills could escalate rapidly. In order to have budgetary control, the individual, departmental executives should only have authority to request a review of an IP situation. The request should go for approval to some central authority. The central authority will deal with the two basic aspects of intellectual property; namely, obtaining protection for the Company's protectable items, and obtaining legal advice where necessary when it appears that the company may infringe on someone else's property.

In many small companies, the central authority is an individual, such as the company secretary or president. In larger companies, there are formal committees. Sometimes, there may be two separate committees, such as a "patents committee," which reviews new products of the company, and a "marketing committee," which reviews the company's trade mark strategy. In even larger companies, there is an in-house lawyer or patent agent who heads an intellectual property department that deals with such matters.

Whatever form the authority takes, the general approach is usually the same. In the case of new company products or trade marks, the authority (in consultation with the appropriate managers) assigns a level of importance to obtaining patent or trade mark protection. For example, in many companies the patents committee will "score" each new invention on a scale of 0 to 4. Inventions scoring 0 are not protected, although they may, if feasible, be kept as trade secrets within the company. Inventions scoring 1 are protected in the home market only, and would be subject to a Canadian patent application only. Inventions scoring 2 are protected in Canada and the United States, while inventions scoring 3 are protected in the United States and certain selected foreign markets. Only on very rare occasions does an invention ever score 4. When an invention does score a 4, protection is sought in a very large number of countries, including the company's present markets and countries where protection might hinder the efforts of competitors, or where the product could be particularly useful, even though the company is not selling to those markets at the present time. In each case, the "scoring" of the invention is done on the basis of present and future company markets and special, competitive facts. When scoring is done by a committee, it ensures that viewpoints from several different areas of the company are received before it is decided how much money to spend on the invention.

A similar evaluation is done with respect to trade mark or design protection. The product is reviewed to see whether it will be sold only in Canada or abroad, and whether it will be a major product of the company. Then, a rating is given as to whether trade mark or design protection should be sought only in the home market, or abroad as well.

The authority's work does not stop when a patent or trade mark is obtained. It is often not realized that a major portion of the expense for patents (and, to a lesser extent, for trade marks) is the ongoing maintenance expense after the right is obtained. In most countries, there is a fee that must be paid annually after a patent has been obtained, in order to keep it in force. Usually, this fee is quite low when the patent is new, but rises steeply until, in the last few years before the patent expires, it is quite high. The theory behind this is that, if a patentee has commercialized his patent, he will not find the fee onerous. If he has not commercialized the patent by the final years of its life, then he should be encouraged to abandon the patent so that other people may use the invention.

The imposition of higher and higher fees each year is intended to sway him toward such abandonment.

A patents committee can, therefore, keep a good control of industrial property costs by examining each patent before its renewal is due, to determine whether the product is still one in which the company is interested. It may be relevant to see whether the company is still supplying the product covered by the patent in the country where the patent is in force. Even if the company is not supplying that market, the patent may have a "blocking" function, in that it may inhibit competitors in that country from supplying another market of interest to the company.

Fortunately, trade marks do not attract yearly renewal fees. Renewals occur from seven to twenty years after the trade mark is granted, depending on the country. However, trade mark renewals can be expensive if the mark has been registered in many countries, and are well worth reviewing.

The central intellectual property authority, such as the patents committee within a company, should also set up procedures for clearing new products. This goes back to the "preventive maintenance," which I discussed at the beginning of this talk. When a new product is developed by the company, a risk assessment should be to ascertain whether the product is likely to infringe on a patent or registered design of someone else. Similarly, when a new name is adopted for a product, a risk assessment should be done to ascertain whether a trade mark or trade name of someone else will be infringed. In a large company this risk assessment is formalized, as the manager concerned with the launch of the new product must generate a "request for product clearance," which is then considered by the patents committee. In a case where the patents committee considers that there is a possibility of infringement of some patent, design or trade mark owned by someone else, they may ask to have a search carried out. Where the search shows some reason for concern, they may then delay the launch of the new product so that a legal opinion can be sought. Another function of the patents committee is to encourage awareness by managers of new products, new ideas and new trade marks. It does this by educating managers, both through release of its minutes and by setting up formal educational meetings.

Making Money From Industrial Property

There are two ways of making money with industrial property. The first is to use it to exclude competitors from a profitable area, and the second is to use it for licensing.

The exclusion of competitors can occur with all forms of intellectual property. For example, a trade mark can be promoted by advertising to develop brand loyalty, and the trade mark right prevents competitors from cashing in on this loyalty. A patent gives the right to exclude others from manufacture, use or sale of a product or process. Confidential information can be used to manufacture products in a way that is cheaper or more efficient than that used by competitors.

If intellectual property is used to exclude competitors, it is, of course, necessary to be vigilant, and to take steps to defend the IPR when it is breached. Whenever it is proposed to assert ABC Company's intellectual property rights, there should also be some cost/benefit analysis done so that the company can decide whether it is, in fact, worthwhile to assert these rights, or whether the damage from infringement of the right would not justify the cost involved to defend it.

It is sometimes hard for management to realize that the exclusivity arising from intellectual property rights is a benefit to the company. Instead, they tend to see the costs of obtaining and enforcing such rights, without realizing fully the benefits that they bring. In periods of austerity, the amount paid to protect rights is cut, and the company often finds later that this has hurt its competitive position.

Licensing, however, is something that can be shown to management as being a direct result of IP, which contributes directly to the bottom-line profit. A trade mark can be licensed or franchised out, and a variety of licensing arrangements are possible with patents, copyrights or trade secrets.

In deciding whether to keep the intellectual property exclusive to ABC Company or to licence it out, several factors should be considered. In a trade mark situation, ABC Company should be concerned about quality control because the quality of goods or services sold under licence will not be under the direct supervision of its management. For this reason, and because the company will want to protect the trade mark, it is necessary to put very strong quality-control provisions into most trade mark agreements.

In the patent field, ABC Company may wish to consider whether it will achieve better market penetration by obtaining several licensees in different areas or by keeping the product or process in its own company. The economics of licensees manufacturing a product should also be considered. In some cases, it is cheaper to manufacture parts or the entire product offshore under licence, and to import what is needed to the home market. In other cases, it may be cheaper to supply the home market, but licence abroad, in areas where ABC Company does not have local knowledge or sales capacity.

Licensing increases the risk that trade secrets will be stolen or will be disclosed inadvertently. This is especially the case when licensing to foreign countries because ABC Company will not necessarily know immediately when a trade secret is stolen, and this may make it harder to take remedial action. Further, trade-secret laws in many foreign countries are considerably weaker than they are in North America.

If ABC Company does decide to licence, the next question is how to get in touch with potential licensees. There are organizations, such as the Licensing Executives Society, that provide a location where licensing people from different industries can get together and exchange information. As well, in certain fields there are licensing brokers. However, it is still most effective to target potential licensees and to visit them.

Large companies have licensing officers or a licensing department, whereas in small companies licensing is done part time by the president or one of the vice-presidents. Surprisingly, a great many licensing agreements are entered into by small and medium-sized companies. This is particularly the case with European companies, where small businesses are very aggressive in licensing out their technology.

The licensing personnel, or management personnel who look after licensing, should first have a basic idea of what a licensing agreement contains. They may wish to meet with their lawyer to discuss what is possible in their industry before they go to visit potential licensees. It is extremely embarrassing to have a potential licensee show interest and then have the potential licensor become confused or evasive because he does not know what terms to ask.

Once a potential licensee has been found and discussions have commenced, it is important that a good legal contract be drafted. Many licences are entered into on the basis of a letter of agreement that does not deal with possible eventualities. This is an invitation to later litigation, with costs that greatly outweigh the amount saved by not drafting a formal contract.

It is possible to have a flourishing business from licensing that will more than cover the IP costs of the company. This means that any other IP benefits are essentially "free," as their costs are covered by the licensing program. However, this requires a good knowledge of the industry and identification of potential licensees, as well as a good analysis of whether licensing in a particular situation will be helpful or harmful to the company's long-term interest.

Conclusion

I have tried to cover a number of different aspects of how intellectual property interacts with a company's bottom line. In many cases, the intellectual property can be a cost. If the company is sued by a competitor, the cost can be catastrophic. However, some of the strategies mentioned can be used to control or manage the costs, and even to turn a profit from the company's IP activities.

V.

Intellectual Property: Policy Dimensions

Economic Analysis of Intellectual Property Rights: Domestic and International Dimensions

Keith E. Maskus

I am pleased to participate in this important conference, which is designed to stimulate discussion among policy-makers, business persons and academics, about how Canada should forge a coherent and forward-looking policy on the protection of intellectual property rights. It is not my purpose to suggest directions for such policies, because the advice I might give could lack practical applicability. For example, I am simply not qualified to comment on how difficult and costly it is for a firm to comply with all of the IPR regulations it encounters when conducting international business.

Rather, I view my task as setting the stage for serious policy discussions by looking at the huge complexities that surround the IPR issue domestically, but also in terms of problems posed at the international level. As well, I will summarize the results of some work I did a year ago for the United States Department of Labor.

The IPR problem is complex and enormous. Let me put some structure in it by asking how an economist would analyze intellectual property? There are two basic questions. The first question is optimality, or the notion of trying to maximize a conception of social welfare, given limited resources. The second question relates to the empirical evidence of the actual effects (trade damages, foregone innovation, monopoly rents, etc.) of various foreign IPR regimes. How well do we understand these impacts and their effects on the welfare of society?

The second question will be considered briefly because there is not much to talk about in the way of empirical evidence. Indeed, interest by business persons in foreign IPR systems far outstrips any serious economic analysis of their effects. There are some often-cited survey results reported by the United States government suggesting that U.S.A. damages, in terms of lost profits, foregone sales, lost jobs and so on due to foreign infringement of intellectual property, range anywhere from moderate to huge. These studies are heavily flawed for a variety of reasons. In fact, it is possible to develop a reasonable estimate of foreign infringement that is beneficial globally, despite losses to United States innovative firms.

Not only do we know relatively little about the costs of lax foreign protection to U.S.A. firms, we also have essentially no information about important structural factors that should inform this debate. For example, how much extra R&D and innovation can we expect to induce in industrial countries if developing countries were to upgrade and harmonize their protection, even if only to levels used in the United States 10 to 15 years ago? The result would be a major accomplishment for the Uruguay Round. We do not even know the direction of the impact on R&D, though I suspect it is positive. But, we would in fact, like to know quantitatively how responsive R&D is to greater protection of foreign creativity, and there is no reliable evidence on the point. Other important questions also emerge. How much would greater IPR protection raise costs to consumers in countries that import technology? How would it affect flows of foreign direct investment and the behaviour of multinational enterprises? We simply do not have any reliable information on these crucial issues.

None of this is meant to suggest that innovative firms and authors and musicians in industrial countries should not work toward seeing foreign IPR regimes improved. I do not doubt that specific firms in particular industries suffer substantive losses from foreign infringement—pharmaceuticals, chemicals, films and records, semi-conductors, software and fashions are primary examples. It is in their interests to change the situation.

But to an economist these losses are only one element in the calculus of the costs and benefits derived from imposing stronger, international IPR protection. Thus, let me return to the question of optimality. What are some of the main trade-offs to consider when thinking about intellectual property? Discussion will be limited to the most significant and apparent issues in this debate. However, there are numerous subtleties that would require attention in formulating any policy changes.

Intellectual property is an asset owned by creators of new information. Society must determine how these creators will be allowed to exploit or reap the economic value of that information. The view that society should determine the right to exploit a creation is a curious notion in itself—certainly the creators of the information believe they are entitled to the economic value (or rents) provided by their asset. However, two basic problems emerge that render the decision rather more difficult.

First, information such as a new technology, a book or a computer program is a public good, which means that my consuming it does not diminish anyone else's ability to consume it. Thus, it is difficult for private markets to allow creators to charge for their works, since they cannot really exclude anyone from using it. Hence, in private markets, firms may have limited incentives to engage in innovative activity, while artists will not paint as much and musicians will have fewer incentives to train themselves rigorously. Society does not benefit from the underproduction of creative goods and, therefore, has an interest in legislating a right for creators to receive compensation.

However, if society gives creators full control over exploitation of their new information, through patents, copyrights, and trade marks, it effectively creates monopolies. The higher prices that result adversely affect users or consumers by transferring benefits from them to creators. And, in a basic sense, this is economically inefficient. Once the new information is provided, the marginal cost of providing it to new consumers is effectively zero, implying that the optimal price should also be zero. Thus, society faces its first trade-off: the dynamic gains from protection of IPRs (greater R&D, innovation, creation, product quality) versus the static monopoly losses such protection entails. In this regard, for example, a simple optimal patent policy would attempt to equalize marginal consumer surplus losses with marginal discounted benefits of future innovation. This criterion is clearly sterile from a practical standpoint, since policy-makers are in no position to assess these trade-offs with any certainty.

Optimal patent policy, the components of which would include patent length, scope of coverage, extension to foreigners, and even whether a patent itself is the best policy compared to government R&D subsidies or tax incentives, would depend on a host of parameters. Among these factors would be the elasticity of demand for a new product or process, the concentration of a particular industry in both the output and technology-input markets, and the responsiveness of R&D by sector to the patent terms provided.

There would be other considerations as well. If society provides a patent to induce the creation of new technology, can we expect important benefits to spillover from the new technologies into other industries? Would these spillovers be national or international in scope? Is the target economy positioned well in terms of technical capability to use these new technologies and adapt them to useful innovations? Would prospective patent users be in a position to abuse the system by monopolizing all of the potential patents (or copyrights or trade marks) of a particular variety, thereby stifling competition and limiting the dissemination of technology? Numerous related issues also emerge.

With this background, it is worth discussing briefly the perceived benefits and costs of providing protection for IPRs, specifically for patents, copyrights, and trade marks, which are the major forms of protection. The discussion applies also to other modes of protection, such as trade secrets and appellations of origin.

Patents

Society expects to garner four main advantages from using patents to reward industrial innovators. The first motivation for having patents is to induce innovative and technological growth by rewarding inventors for the uncertain and expensive process of research and development. This objective is important in principle, but how important, really, are patents to inducing innovation? Several surveys by Edwin Mansfield of the University of Pennsylvania suggest that the prospect of receiving a patent is not very inducive to generating innovations, except in a few industries. Competitive pressures and business strategies relating to market structure, as well as the ability to sustain trade secrets, and the inherent difficulties rival firms have in duplicating new technology are more important factors. This is a damaging finding that suggests patents are wasteful transfers of rent from consumers to producers. However, this argument must be qualified in at least two important ways. First the inherent weakness of the patent system itself may cause firms to expect small benefits from procuring protection, so that stronger protection could, in fact, stimulate far greater innovation. Second, given that, increasingly, the locus of competition among industrial countries is in the high-technology and information industries, it is likely that the promise of patent rights has become more urgent for commercial innovators.

A second reason to have patents is to promote technological diffusion and transfer. A patent requires public revelation of the technical steps leading to the new product or process. Other firms are free to use this information, providing they respect the patent.

A third function of patents is to avoid costly duplication of research by industry through diffusion of information. Finally, through patents, new technologies could create benefits that would improve technical efficiency in related firms and industries.

Society may suffer from several significant costs that may be associated with strong patent provisions. First is the distortion associated with monopoly pricing. This distortion transfers consumer surplus to innovators' rents and leftover loss. This problem can be particularly serious from a social welfare standpoint, where the product is considered vital for health or sanitation purposes (e.g., medicines and foods) or is a key intermediate input.

A second, related problem is the prospect of excessive monopolization of a series of patents, thereby creating broader monopoly powers. Such monopolization could enable patent owners to place onerous conditions on licensees and potential competitors. In the extreme, the monopolistic firm may not agree to license the technology or may not use it at all in certain markets, thereby depriving those markets of access to the new product or process.

A third cost of stronger patent protection would be the diversion of real resources into R&D activities, and society should be aware of the general equilibrium implications of this fact. If, for example, there is little entrepreneurship, and demand for it rises with stronger protection, the economy could witness a dramatic increase in management costs in all sectors. Similarly, the administrative costs of enforcing a patent system may be significant, including private and public costs of litigation. Good administration requires technical and legal expertise to judge the patentability of a new product or process. A country must decide whether it really wants to divert scarce technical resources into this administrative task.

Other benefits and costs could be mentioned, but this description should suffice to indicate the complexities involved in designing a patent system, leaving aside the issues of definition and measurement. It would seem, at a minimum, that optimal patent policy would vary across industries. Because actual patent systems employ standard procedures based on historical traditions that have limited relevance to today's technologies, it is likely that countries are providing innovative firms with either deficient or excessive transfers.

Optimal policy would also vary across countries. In this context, consider the situation where a developing country imports both technology and technologically intensive goods. What benefits and costs would accrue in the provision of greater protection to foreign innovators who want to exploit their new technologies in this country's market?

If a developing country were to upgrade the protection provided by its patent regime, it might expect some indirect benefits, by inducing greater foreign innovation. Given the evidence referred to earlier, however, it is doubtful that this effect could be significant. The responsiveness of United States R&D to patent provisions in, say, Korea or Taiwan is surely weak. Improved protection might also yield direct benefits by generating more domestic innovation. However, a discriminatory policy in favour of domestic inventors would probably achieve more domestic invention by offsetting the inherent disadvantages local firms experience when engaging in such activity. On the face of it, then, a strong case for national treatment in strengthening patents may be difficult to make. Counterbalancing this notion, however, is the simple observation that discrimination in technology policy risks the creation of an inefficient, protected, high-technology sector that may find it impossible to become globally competitive.

A second argument in favour of stronger IPR policy is greater technological transfers, so that technology diffusion could be induced. Again, this is an unanswered, empirical question that receives little guidance from theory. For example, firms in a developing country can freeride on the patent publications of industrial countries, but it is difficult to convert these technical specifications into new, imitative products without significant technical capability. Furthermore, multinational firms may feel more comfortable operating in countries where their techniques are subject to compensated imitation. They could also choose to exploit the patent through exports.

With respect to costs, a developing country would increase the right of foreign and domestic innovators to charge greater monopoly prices if there were stronger patent protection. How could it serve the interests of a country to transfer monopoly rents to foreign producers if there is little technical benefit at home? It cannot, except perhaps in some vague, dynamic sense that promises a brighter, technological future.

A developing country's concern would be that foreign owners of domestic patents exercise them wisely by having local production facilities and charging reasonable prices. On the other hand, foreign owners may abuse patent rights, at least in the eyes of a host country. If, for example, innovators do not choose to supply the good under patent to the local economy, it cannot be consumed there, nor can it be produced domestically. One, therefore, understands why governments institute compulsory licensing, which can be beneficial in some circumstances, and why foreigners are not given national treatment in the provision of patents.

Finally, the resource costs of greater R&D spending, and developing and maintaining a thorough patent administration, may be prohibitively high and may absorb too much of the economy's scarce resources of skilled labour. Taking all of these factors into account, perhaps it is not sensible for a developing economy to force technological development through a non-discriminatory patent system.

I do not wish to sound like an apologist for developing countries that choose, as a matter of policy, to expropriate for their own purposes some of the economic fruits of foreign creative effort. Such policies are, after all, annoying and outrageous to innovators in industrial countries. And stating that it may be in the interests of poor countries to limit patent protection does not imply that their actual policies are rational in terms of social welfare. Rather, they may simply be protective schemes to reward special interests, but that act as a drag on development. Further, the arguments made here are probably only true for the poorest and least developed countries. Since their markets are not particularly consequential and their abilities to pirate technologies are limited, their IPR policies are not of great concern.

Rather, the main focus should be on semi-industrial or newly industrialized countries such as Korea and Brazil, as well as on some of the wealthier technology-importing countries, such as Japan, Australia, and, perhaps, Canada.

Brazil in particular has been aggressive in using discriminatory intellectual property laws in order to promote domestic technological development. Their informatics policy, *Law of Similars*, etc., in conjunction with various trade and investment barriers, have made it difficult for foreign creators of pharmaceuticals, computers, software and so on to receive compensation for technologies adopted in Brazil or to engage in trade with Brazil on commercial terms. It would appear Brazil's policy has succeeded only in fostering a small, protected and backward high-technology sector that restrains the competitiveness and growth of the rest of the economy. It is, however, difficult to measure the full effects of these policies in such a heavily distorted economy.

Further, Brazil has experienced first hand United States anger at its recalcitrance on this issue and continues to have related trade problems with the U.S.A. I assume Brazil will experience similar problems with other exporters of technology as well. It is in this area that one hopes the major semi-industrial and smaller, industrial countries will adopt serious intellectual property regimes, as Korea did in the late 1980s. On the one hand, simply from the standpoint of economic efficiency and growth, limited and discriminatory policies can slow down an economy's technical development by limiting technical transfers coming in, preventing the adoption and creation of frontier technologies, and generating substantial resource waste behind protectionist barriers. On the other hand, a failure to adopt more transparent and non-discriminatory policies can carry large risks for countries that are dependent on good trade relations with industrial countries. I hope that if these observations are correct, the various countries on both sides of the issue will find it advantageous to work these problems out in appropriate multilateral forums such as GATT.

Copyright

One can make similar observations with respect to copyrights. Copyrights exist to reward authors and artists for creating their works and making them public, though we do not know how important copyrights really are in this respect. They also help foster a cultural sensitivity and identity. Copyright protection has become more urgent in recent years because of the proliferation of cheap, high-quality copying technologies in photocopying, audio and video. In turn, this development has eroded the profits of publishers and music and film producers because pirated copies are being produced in developing countries for home consumption and for export.

A serious, related problem lies in software, although many countries provide copyright protection. However, the copyright covers a particular expression (or computer code) of a program, and it is relatively easy to change some lines of code sufficiently to avoid infringing the copyright. Similarly, the question of how best to protect the architectural design of computer chips is not easily resolved by traditional approaches to IPR protection, using patents or copyrights. Industrial countries have moved toward a unique system of protection for these devices, a trend that may signal the beginning of generalized efforts to tailor protection to specific forms of intellectual property.

Interesting questions emerge also with respect to having copyrights for electronic information (e.g., databases) that may cross borders and satellite transmissions of broadcasts. There is some ambiguity about what kind of protection each country should provide to foreign creators in these and other areas.

Again, the issue sometimes comes down to developing appropriate policy. For example, it may be in the interests of developing countries to allow cheap copying of foreign text books that have copyrights without compensating their authors, in order to partake of the knowledge in the books. This argument is probably valid for only the poorest countries. Furthermore, allowing pirated copies of music, films and software to be produced domestically may not generate greater employment, income and foreign exchange earnings locally than if countries were to provide full copyright protection to foreign artists. One would hope that such protection would result in legitimate transfers of production, through licensing and foreign direct investment. Finally, the more important semi-industrial countries may find it in their interests to provide full protection, rather than risk economic retaliation or sanctions.

Trade Marks

Trade marks exist primarily to protect the reputations of specific firms for producing quality products. In doing so, they provide these firms with an incentive to maintain and upgrade product quality and to develop new products. Trade marks also reduce consumer time searching for quality products by assuring buyers of the expected utility of goods carrying well-known trade marks. They also provide certain "snob appeal" benefits. Enforcement of trade mark rights protects the investment in advertising and other forms of product differentiation, along with any monopoly profits the trade marks may confer. On the cost side, these monopoly rents may extract more surplus from consumers than is needed to promote optimal product quality. Further, they might encourage excessive product differentiation and industrial concentration. In total, the value of trade marks is widely accepted in most industrial countries because they are seen as important guarantors of quality and safety.

Again, we may ask why a developing country would pay higher prices for imports and transfer rents to foreign trade mark owners? It might be better from a social welfare standpoint for these countries to allow infringement of trade marks in order to generate greater production and, consequently, exports by local firms, despite the confusion this might cause among global consumers. The temptation to infringe on a trade mark for high-fashion goods, with their prices much in excess of production costs, is obvious, even for firms that are under licence to produce these goods legally. This results in "gray-market" transactions or parallel importation.

If the absence of foreign protection results in a substantial amount of trade in counterfeit goods, the economic value of trade marks is surely diminished, and this may lower incentives for further product development. The extent of counterfeit trade would depend on the price-cost margins of the trade mark owners, size of markets into which sales of unauthorized products are feasible, technical barriers to imitation, quality differences among legitimate and fake products, competition among potential counterfeiters, and other parameters. This means that the marginal contribution of foreign trade mark law to new-product development may also be rather limited. Does such protection induce greater production of goods carrying foreign trade marks under licensing agreements or foreign direct investment in developing countries? It seems the answer could go either way. Without protection, significant employment and output may be generated in counterfeit goods, whereas with protection foreign firms may simply opt to sell the products locally under trade mark. In this regard, it is worth noting that many of the products requiring trade mark protection (fashions, cosmetics, luggage, and so on) carry relatively straightforward, labour-intensive production techniques that would favour output in developing countries. For such products, local trade mark protection may well result in increased production under licence to foreign owners. This, however, may not be true for other important products (such as pharmaceuticals) that carry trade marks.

Much of the estimated damage due to deficient foreign intellectual property protection lies in the trade mark area. Here, it is a bit more difficult to dismiss the poorest country's concerns, since they are capable of producing lower-quality "knock-offs" for export fairly easily. Perhaps some sensitivity to the national social welfare requirements of developing countries is needed prior to forcing a resolution of the issue—after all, the net income of the Calvin Klein Corporation is not a particularly compelling argument.

Resolution of the inherent difficulties in IPR protection should be addressed in multilateral negotiations. This subject is the focus of another panel at this conference. I hope I have laid some groundwork for that discussion, without sounding too pessimistic about the prospects for finding mutually advantageous areas for policy change.

Intellectual Property Rights and Information Technology

Graeme C. Hughes

As President of the Information Technology Association of Canada (ITAC), I am interested in public policy affecting the industry. That does not mean I have much understanding of technology per se. Nevertheless, my remarks attempt to map out and analyze what I, as a generalist, representing the information technology industry, see as emerging public policy issues. Of all the high-technology fields, I believe that none is pushing the frontiers of intellectual property rights more than information technology. Let me describe four salient characteristics of the industry—characteristics that greatly affect the way the industry looks at IPRs.

- First and foremost, the industry is R&D-intensive. I assume this audience needs no convincing that the growth of the IT industry depends on continual and rapid innovation. It is more R&D-intensive than any other industrial sector and it does approximately 40 per cent of the total industrial R&D carried out in Canada.
- The industry is international in its outlook. Both its marketing and production are done internationally and so, I must point out, is its R&D. All of the large companies in the

industry have plants, marketing facilities and R&D laboratories interconnected around the world. Data from production facilities and R&D laboratories are easily and regularly transferred from one location to another.

- Because of this R&D intensity and international organization, the industry is particularly open to—in fact dependent on—new ideas, new inventions, new innovations from around the world. No firm for its own commercial success can do all of the R&D it would like. The industry constantly searches for new ideas developed by foreign competitors, universities or thinktanks. Every firm, to a greater or lesser extent, is dependent upon the IPP system for the timely disclosure of new ideas, and for the commercial opportunities it presents.
- The fourth characteristic is a delightful paradox. The industry, dependent as it is upon the protection of intellectual property, is the same industry that provides the technology to facilitate its unauthorized use. A classic example we all understand is photocopying. By definition, photocopying asks you to break copyright law. More recently, the advent of digital audio recording equipment has caused a stir because it enables consumers to make "perfect" copies of commercially available tapes.

I list these characteristics because they significantly affect the industry's view of the balance that intellectual property law should achieve between the encouragement of creativity on the one hand and the disclosure and commercial exploitability of that creativity on the other.

The fact that the industry is extremely R&D-intensive confirms the need for strong IPR protection. Yet sometimes new IT can suggest the need for a new balance point. I believe this requirement has been caused by the introduction of photocopying, or integrated circuit technology. As a result, sui generis legislation for chip protection has been introduced into the Canadian Parliament.

The fact that the industry creates and proliferates the very technology whereby unauthorized use can so easily be achieved, suggests that policy-makers should never try to play King Canute. They should not try to say "thus far and no farther" to the tide of IT enablement when the technology itself is begging application, even if that application constitutes unauthorized use under current law.

What is a reasonable balance for these interests, bearing in mind the overriding public policy requirement of promoting fair competition? What is "reasonable," what's "fair?" I would like to go a little deeper into these issues by examining our current IP law with regard to computer programs because this is where all of these issues come into sharp focus.

As far as patents are concerned, existing law provides, first, that a valid patent can only be given for an invention that is useful, new and not obvious. While some computer programs do not meet all of these criteria, a much more fundamental issue is, which programs survive the second test? Section 2 of Canada's *Patent Act* provides that a patent can only be given for an invention that is defined as an "art process machine manufacture or composition of matter." Specifically excluded is "any mere scientific principle or abstract theorem." Ostensibly computer programs fall foul of this exclusion. To get around this, it is necessary to file patent claims that describe something more than a computer program. A claim is not obliged to include computing apparatus or computing steps. For example, in the case of a process, if all the claim describes is a series of mathematical steps, it is probably invalid. It may be a patentable process, however, if those steps are combined with further steps that are not all performed by carrying out the program in a known computer. Generally speaking, ideas in terms of apparatus or process steps are patentable if they can be carried out electrically, mechanically or chemically.

I think there is consensus that patent laws do not in their current state provide adequate protection for the many programing developments we are facing because the great majority fail to meet the conventional requirement of not being obvious or, if they do, are too short-lived to warrant the considerable time and expense of patenting.

The picture is much more complicated, however, when we look at copyright. Just as it is necessary in patent law to distinguish between an unpatentable abstract idea and a way of implementing the idea, so in copyright law it is necessary to distinguish between an idea and the way the idea is expressed, because only the latter is protectable.

In order to have copyright, first, the alleged work must fall within the classes of things that the *Copyright Act* states is capable of having copyright: literary, dramatic, musical and artistic works that may or may not have been created without the intervention of any machine. Also included by statute are certain works that derive most of their quality from the use of machines; namely, photographs and recordings. Second, the work must be original and it must be fixed, rather than transitory. In Canada and most Commonwealth countries, originality is generally believed to be nothing more than the absence of copying.

By statute, Canada and many other countries have only recently settled doubts as to whether computer programs satisfy the first criterion—their copyright statutes acknowledge computer programs as literary works—and the Canadian statute defines a computer program in terms that are broad enough to include both object code and source code.

As for infringement of copyright, if a substantial part of an object code is copied (e.g., by programing a chip), then a substantial part of the source code has been indirectly copied and, therefore, an infringement of the copyright in the source code has occurred. If there is also copyright in the object code, then to copy it is an infringement of the copyright in both the source code and the object code.

I have said that copyright protects the way ideas are expressed, but not the ideas themselves. It is no infringement of copyright to take someone else's idea and express it in your own way. But computer programs create major difficulties when it comes to drawing the line between an idea and its expression.

Courts in the United States have sometimes used the term "look and feel" as a way of saying "expression." When applied to artistic work (e.g., a design that appears on a computer screen), the term "look and feel" is, perhaps, as good as the term "expression." United States courts have also referred to "structure," "sequence," and "organization" (terms that mean much the same thing) as a way of saying "expression." These terms are hardly appropriate for artistic works, but are used to signify that one may copy the expression of a dramatic or literary work without copying words, where more is copied than merely the idea of the work.

Here, the policy concern is whether protection of the structure, sequence and organization of something that drives a machine (computer) comes too close to protecting indirectly the very things patent laws state should not have protection; namely, the structure, sequence and organization of computer programs, regardless of whether the programs are new and not obvious. This policy concern can be understood if one takes, by way of comparison, the case where an author writes a description of the operation of a machine. The author of the description does not have copyright protection over the operation of the machine. His copyright is infringed if someone copies a substantial part of his literary description, but it does not cover making or operating the machine that he describes. On the other hand, a computer program can be copied onto a disc, tape or chip and used to control the operation of the machine (computer). If this is considered to be a copyright infringement, then it might be thought the literary copyright in the program is extended far beyond the literary copyright in an article describing a machine, or the copyright in instructions for building or operating a machine.

A computer responds to a program, and owners of program copyrights wish to ensure that there is infringement of copyright if a program is varied to achieve substantially the same response. They, therefore, argue the important aspect of a copyright is the sequence (structure or organization) of the program. Extending copyright to cover making and operating a machine might be considered to extend copyright beyond the literary into the utilitarian. Protecting sequence would extend it farther, to include cases where there has not been direct or indirect copying of words. This offends those who believe copyright should no more than prevent unauthorized literary, dramatic, musical or artistic exercises. In the U.S.A. and Canada, however, this policy trade-off must not be decided by the courts. The definition of literary work has been expanded to include computer programs, and no exceptions have been provided to this definition in the statutes. This policy is being reviewed by the EEC and may be discussed at the GATT. The industry in Canada, however, is unanimously opposed to any exceptions being legislated or agreed to in the GATT. Industry in Canada, and I believe in the U.S.A. as well, thinks this subject should be left to court interpretation.

As I have already noted, the information technology industry is often the author of its own difficulty. We probably all recognize the existence of computer programs that allow automatic decompiling of the object code. If an object code is decompiled to reproduce a substantial part of a copyright source code, any unauthorized decompilation is an infringement of the copyright in the source code, and also in the object code if it has copyright. Decompiling is a form of reproduction that is not exempted in copyright legislation, although it might be regarded in some cases as equivalent to the reverse engineering exemption found in, for example, the United States legislation that provides copyright protection for semi-conductor chip topographies.

I have tried to outline how the technology is creating for itself new IPR problems. On one hand it wants fairly strong intellectual property protection, but on the other not strong enough protection to prevent "fair" competition by modifying and adapting the ideas of others. The technology has created photocopiers and decompiling programs. Developments like these strain the current definition of what is "authorized" use, and question the proper domain of patent and copyright laws.

Some argue that existing definitions of patent and copyright cannot be stretched much further without destroying their raison d'être. Some would argue that a sui generis approach is appropriate—Canada adopted this approach when it introduced *Bill C-57*, the *Integrated Circuit Topography Act*. This Bill responds to an earlier U.S.A. statute, but this worldwide trend does reflect the view that protection of semi-conductor chips is unique and doesn't fit comfortably within either patent or copyright law. *Bill C-57* provides a copyright type of protection, but only for ten years, and it also permits a type of reverse engineering. It might be argued that the definition of a patent should be changed entirely to include computer programs specifically. It should meet the usual requirements of novelty, usefulness and not being obvious, and should be intended for use in a computer. This would avoid any suggestion of broad protection of abstract ideas.

These are substantial, public policy questions and should not be answered in a hurry. Technology changes very rapidly, especially in the IT field. What appears to be an issue today may become a different issue tomorrow.

ITAC is aware of these issues and, jointly with the Canadian Association of Data and Professional Service Organizations (CADAPSO) has commissioned a study to consider them. Phase I has been completed. Mr. W. Hayhurst, Q.C., of the Ridout and Maybee firm, has met with ITAC's and CADAPSO's Legal Affairs Committee on several occasions and has produced an excellent report, which will be published shortly, as a result of these discussions. The report covers the existing law comprehensively and raises some very interesting questions. ITAC is now preparing to investigate these questions further in a report on phase II. This subject is not just of academic or theoretical interest. Information technology is the enabling technology for all economic sectors, today and well into the 21st Century. Intellectual property laws are crucial to the creation and the application of this technology. We must have the right public policy balance: our IPR system must protect the public interest and encourage both the creation of information technology and its widespread application.

The Interface Between Competition Policy and Intellectual Property Rights in the Canadian Economy

Howard Wetston[*]

It is a pleasure to be here today to discuss the interface between competition policy and intellectual property rights in the Canadian economy. There is a growing recognition in Canada of the importance of competition policy as a policy framework for economic development in the 1990s. There is also increasing awareness of the close relationship between the objectives of competition policy and intellectual property. This is particularly evident in the present environment of accelerating technological change and global competition, in which the laws governing the economic framework are an important determinant of our international competitiveness.

In my remarks today, I shall, first, discuss the basic perspective of competition policy toward intellectual property rights and how this perspective has evolved over the years. I shall then review certain sections of the *Competition Act* that have specific implications for IPRs and licensing practices. This discussion will show that Canadian competition law provides a balanced framework for addressing IP licensing issues.

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[*] This paper was prepared with the assistance of Dev Khosla and Rob Anderson of the Economics and International Affairs Branch, Bureau of Competition Policy.

Next, I will turn to the matter of policy development—the role that the Bureau of Competition Policy has played in the modernization of Canada's intellectual property legislation. I will also comment briefly on some important competition policy-intellectual property issues for the 1990s, and will focus on the international sphere. In this connection, I shall also mention some work that is proceeding under the auspices of the OECD Committee on Competition Law and Policy.

The Competition Policy Perspective Toward IPRs

In Canada and abroad the perspective toward IPRs has changed considerably in the past decade. Prior to the 1980s, IPRs were often viewed as "statutory monopolies"—a form of necessary evil that could easily impose excessive costs on consumers—and major efforts were made by competition officials worldwide to constrain the exercise of IPRs.

It is now recognized that intellectual property rights serve a useful, pro-competitive function in a market-based economy.[1] From an economic perspective, intellectual property rights foster innovation and creative activities. This enhances the well-being of consumers and helps to provide a more competitive marketplace. In a complementary fashion, one of the main objectives of competition policy is to promote consumer well-being by removing impediments to the efficient functioning of markets.

Today, there is also an improved understanding of the economic effects of trade practices such as tied selling, field-of-use restrictions and other vertical market restraints that are sometimes employed in IPR licensing arrangements. Whereas in the past these practices were widely viewed as intrinsically anti-competitive, it is now accepted that in many cases they serve useful, pro-competitive functions.[2] Licensing practices are of concern primarily where they serve to create or enhance market power, rather than to capture the economic value inherent in an invention or product.

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[1] See Robert D. Anderson, S. Dev Khosla and Mark F. Ronayne, *The Competition Policy Treatment of Intellectual Property Rights in Canada: Retrospect and Prospect* (Bureau of Competition Policy: Mimeo, 1990). To be published in a forthcoming volume by The Institute for Research on Public Policy to commemorate the centenary of Canadian competition law.

[2] Organisation for Economic Co-operation and Development, *Competition Policy and Intellectual Property Rights* (Paris: 1989).

Accordingly, while the Bureau of Competition Policy remains ready to address anti-competitive abuses associated with IPRs, the Bureau also recognizes that in the vast majority of instances the exercise of IPRs through licensing and other arrangements is consistent with sound competition policy objectives.

The Competition Law Framework for the Exercise of IPRs in Canada

As most of you are no doubt aware, in 1986 Canada's competition legislation was substantially overhauled and modernized by Parliament. The resulting legislation, the *Competition Act*, incorporated important new provisions that relate to mergers, abuse-of-dominance, specialization agreements and other matters.

The present legislation provides a case-by-case approach for dealing with IPRs and related licensing practices. This is evident, for example, in the abuse-of-dominance provisions that were added to the legislation in 1986. These provisions replaced the old monopoly provision of the *Combines Investigation Act* and are a key element for dealing with restrictive business practices.

The abuse-of-dominance provisions are non-criminal sections of the *Act* that afford remedies for a broad range of anti-competitive acts. A "non-exhaustive" list of such acts is provided in Section 78 of the legislation. The list includes acts such as requiring or inducing a supplier to sell primarily to certain customers, or to refrain from selling to a competitor, the objective being to prevent a competitor's entry into, or expansion in, a market. It should be emphasized, however, that the list of anti-competitive acts that may be dealt with under the abuse provisions was deliberately left open-ended by Parliament. Accordingly, this section is potentially applicable to a broad range of IPR licensing practices such as tie-ins, field-of-use or exclusive purchasing requirements.

It is worth noting that the abuse-of-dominance provisions contain a limited exception for the exercise of IPRs. This exception applies to acts that are engaged in "pursuant only to the exercise of" rights or enjoyment of interests derived under intellectual property statutes. This exception does not, however, provide a blanket exemption for IP holders. The wording of the exception suggests that the abuse-of-dominance provisions remain applicable to practices that are shown to constitute abuses of intellectual property rights.[3]

You may be aware that the first application by the Director of Investigation and Research under the abuse-of-dominance provisions—the NutraSweet case—is currently before the Competition Tribunal. It is worth noting that IPRs are important in this case. In particular, a key allegation made by the Director is that the respondent has used its well-known trade mark to foreclose competition in the market for aspartame by paying an allowance to customers who display the trade mark.

Furthermore, in addition to the effect of the trade mark allowance in the NutraSweet case, exclusive purchasing requirements were imposed on major customers who agreed to use the trade mark. The impact of the NutraSweet Company's patents in Canada and the United States is also an important part of the background to this case. No doubt this will be an important precedential case not only from the abuse-of-dominance perspective, but also to help clarify some issues regarding the competition policy-intellectual property interface in Canada.

Another key provision of the *Competition Act* is Section 32, which relates to intellectual property rights. This section permits the Federal Court of Canada, on application by the Attorney General, to take various remedial measures respecting the anti-competitive abuse of patents, copyrights, trade marks or registered industrial designs. The available remedies include orders that declare practices in licensing agreements void and/or that restrain any persons from carrying out such objectionable provisions.

Two points regarding Section 32 should be noted. First, any remedial measures that are taken are contingent on establishing before the Federal Court that the practices in question have "undue" anti-competitive effects. This is essentially the same test that is applied under the conspiracy provision of the *Act*. The cases adjudicated under the conspiracy provision have established that this test embodies a high threshold of anti-competitive effects. Second, the *Competition Act* also stipulates that remedial measures taken under Section 32 may not violate Canada's international obligations with respect to the protection of IPRs.

Section 32 was applied in the *Union Carbide* cases of the early 1970s. These cases involved field-of-use restrictions and other provisions employed by the Union Carbide Company in its patent licensing agreements. Each of the cases was resolved through a negotiated settlement between the Attorney General and the company that addressed the primary competition concerns.

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[3] See R.D. Anderson and S.D. Khosla, "Reflections on McDonald on Abuse of Dominant Position" (*Canadian Competition Policy Record*, vol. 8, no. 3, September 1987), pp. 51-60.

Other sections of the *Competition Act* that are applicable to IPR licensing arrangements also embody appropriate threshold requirements and tests that limit their application to licensing practices. For example, the various provisions applicable to tied selling, exclusive dealing and territorial market restriction all require that the practices in question be shown to "lessen competition substantially." The point is that the current *Competition Act* affords remedies for dealing with abusive situations without interfering in normal commercial licensing practices relating to IPRs. This is broadly similar to the approach followed by other major industrialized countries.

I would like to mention one other section of the Competition Act, which was added in the 1986 amendments and which refers specifically to patents; namely, Section 86 concerning specialization agreements. In conjunction with Sections 85 and 91, this section provides for the non-application of the conspiracy section of the *Competition Act* to registered specialization agreements. The purpose of this potentially very important (but to date unused) section is to facilitate industrial rationalization and to help Canadian firms to compete effectively in international markets.

The reference to patents is contained in Subsection 86(4) of the provisions governing specialization agreements. As a condition for registration of an agreement, this subsection authorizes the Competition Tribunal to initiate orders requiring the wider licensing of patents. In effect, therefore, Subsection 86(4) makes it possible for firms to avoid potential liability for certain actions relating to specialization agreements through undertakings to ensure wider licensing of patents and/or other competition measures.

The Role of the Bureau of Competition Policy in Providing Input into the Modernization of Intellectual Property Legislation

The Bureau of Competition Policy has long recognized that ensuring an appropriate interface between competition policy and intellectual property is not simply a matter of enforcing existing legislation. Rather, it requires staff of the Bureau to carefully monitor and provide input into the legislative and policy developmental process. For example, the Bureau participated extensively in the development of the 1987 amendments to the compulsory drug patent licensing provisions of the *Patent Act*, to ensure that competition policy concerns were fully considered.

More recently, the Bureau of Competition Policy participated actively in the development of the competition policy-related aspects of the 1988 *Copyright Act* amendments. An important thrust of the amendments was to foster the establishment of collective societies to administer rights in new fields of copyright such as photocopying. This required a limited exemption for certain collective licensing arrangements from the *Competition Act*.

Another important aspect of the 1988 *Copyright Act* amendments, in which we were involved, was a consequential amendment to Section 32 of the *Competition Act*. Prior to 1988, this section provided remedies to deal with anti-competitive abuses pertaining only to patents, trade marks and industrial designs. The 1988 consequential amendment extended this section to cover the anti-competitive abuse of copyright as well. This was an important balancing aspect of the *Bill*.

Recently, a similar amendment was also included in *Bill C-57*, the *Integrated Circuit Topography Act*, which is currently before Parliament. This will ensure that the new exclusive rights that will attach to semi-conductor chip designs will also be subject to the remedies available under this provision of the *Competition Act*. I believe these competition policy-related provisions, while admittedly technical in nature, will help to ensure the efficacy of the new legislation.

Competition Policy-Intellectual Property Issues for the 1990s

With the globalization of markets, there is more and more interest in measures to foster Canadian international competitiveness. In this connection, there will likely be renewed interest in the treatment of intellectual property licensing arrangements and their implications for technological transfer.

I believe the existing provisions of the *Competition Act* provide a sound basis for dealing with IPR licensing practices. This applies to international as well as to domestic licensing agreements that impact directly on Canadian firms. It might be helpful to the business community, however, if the Bureau of Competition Policy developed a set of guidelines that specify how the relevant provisions of the Competition Act can be applied to technology licensing agreements. For example, in the United States and Japan, the antitrust authorities have recently issued guidelines that describe the application of their antitrust laws to international licensing arrangements and other matters.[4] Of course, this would be a complex exercise that would require considerable consultation both within Consumer and Corporate Affairs Canada and with interested parties.

A related issue concerns the regulatory treatment of restrictive licensing practices in multilateral discussions respecting IPRs. In the past, representatives of various developing countries have proposed the implementation of international agreements to regulate or prohibit restrictive licensing practices at the multilateral level.[5] While we recognize their concerns, it is questionable whether the development and international diffusion of technology would, in fact, be facilitated by strict regulation of the licensing practices. As I indicated earlier, we believe that many of these practices are not harmful to competition and can even serve valid functions related to efficiency.

A third competition policy-intellectual property issue for the 1990s concerns the role of IPRs in facilitating international price discrimination and market segmentation. This role arises from the ability of IPR owners in some circumstances to use their rights to bar parallel importation of legitimately made foreign products. On the surface, this may appear to be inconsistent with the general trend toward freer movement of goods, services and capital in international trade.

A measure that is sometimes proposed to address this situation is the implementation of exhaustion of IPRs in international trade. In general terms, exhaustion refers to the elimination of the existing rights of IP holders to control parallel imports of products embodying their intellectual property.

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[4] See U.S.A., Department of Justice, *Antitrust Guidelines on International Operations* (Washington, D.C.: U.S. Government Printing Office, November 1988) and Fair Trade Commission of Japan, *Guidelines on Unfair Trade Practices With Respect to Patent and Know-how Licensing Agreements* (1989).

[5] For background, see J.P. Palmer and R.J. Aiello, "International Technology Exchange: An Economic Analysis of Legal Proposals," in John J. Quinn, ed., *The International Legal Environment* (Toronto: University of Toronto Press for the Royal Commission on the Economic Union and Development Prospects for Canada, 1986), pp. 239-70.

A study prepared in the Bureau of Competition Policy indicates that the exhaustion issue is even more complex than first meets the eye.[6] The study suggests that, by eliminating the ability of IPR owners to segment international markets, the implementation of exhaustion "across the board" could actually undermine the incentive for rapid introduction of new technology into Canada. In any event, implementation of exhaustion would also prove difficult without substantial standardization of intellectual property legislation internationally.

In considering these and related issues respecting the competition policy-intellectual property rights interface, interested persons should have regard to the ongoing work in this area by the OECD Committee on Competition Law and Policy. In 1989, a Working Party of the Committee completed an extensive study of the competition policy treatment of intellectual property rights in OECD member countries.[7] Recently, the Working Party has initiated a follow-up study on competition policy and franchising. The OECD Working Party will remain active in the intellectual property area for some time to come, and I look forward to participating in this work.

In closing, I would like to add that, in my view, innovation is best facilitated by maintaining structurally competitive markets. At the same time, innovation itself increases competition in the affected markets and facilitates the efficient functioning of a competitive market-based economy. Seen in this light, the *Competition Act* and Canadian intellectual property laws clearly represent complementary means of serving closely related objectives.

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[6] R.D. Anderson, P.J. Hughes, S.D. Khosla and M.F. Ronayne, *Intellectual Property Rights and International Market Segmentation: Implications of the Exhaustion Principle* (Hull, Quebec: Bureau of Competition Policy, Economics and International Affairs Branch, mimeo, 1990).

[7] Organisation for Economic Co-operation and Development, *supra*, note 2.

Global Rivalry and Intellectual Property: Implications for Canadian Economic Policies

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Murray G. Smith

Introduction

Canadians appear to support the idea that Canada needs to promote the development of its high-technology industries. One measure of this willingness is the relatively rich fiscal incentives that Canada offers to stimulate research and development. Yet, if Canadians give any thought at all to intellectual property rights, they are sceptical and suspicious that protection of IPRs will have costs, but offer few benefits.

Intellectual property rights are diverse, and include patents, copyright, trade marks and trade secrets. Each category of intellectual property has distinctive legal arrangements and raise specific policy issues. Each involves a distinctive set of trade-offs among the interests of users and producers.

This paper focuses on the interaction of intellectual property rights and the international negotiation of those issues with other aspects of economic policy in Canada.[1] Much of the analysis of the economics of IPRs has been developed in the context of a closed economy and only recently has this analysis been extended to open economies. Invariably, the focus is on designing IPR regimes that make the appropriate trade-offs between producer and user interests without giving consideration to the broader linkages to other policies. These linkages can arise from the economic interactions among policy measures taken by Canadian governments or from actions taken by our trading partners.

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[1] John Curtis provides a clear summary of the international trade negotiating issues that are raised by intellectual property rights in "Intellectual Property and International Trade," (*Institute of Development Studies Bulletin*, University of Sussex, Volume 21, January 1990).

Why did intellectual property issues emerge on the international negotiating agenda in the 1980s?

Perhaps it is simply a preoccupation with centennials that captures public attention, or at least the attention of policy-makers. This is the 200th anniversary of the United States Patent System, and we have just passed the centennials of the Paris Convention (1883), and the Berne Convention (1886). Perhaps, like Haley's Comet, which returns every 70 years, there is a 100-year cycle governing efforts to elaborate intellectual property regimes.

Several economic and technological factors provide more immediate, and possibly more compelling, explanations for this development. These various factors are interrelated and, together, constitute the phenomenon known as globalization.

Globalization has become a cliche, but, like many cliches, it points to a reality that is obscured by familiarity. Many Canadians claim to be aware of the economic dynamism of the Pacific Region and of the imperatives of meeting global competition, but revert to a view of the Canadian economy that is rooted in the 1950s, not in the 1990s. As Eastern European countries stumble out of the Stalinist strait jacket, it is worth noting how much the rest of the world has changed.

Economic interdependence has increased for reasons that are not related to economic policy. A long period of relative peace and security has fostered the expansion of global commerce. An ongoing revolution in the technologies of transportation and communications has reduced, and continues to reduce, economic impediments to international trade in goods and services.

Economic policy co-operation among industrial countries has contributed to increased interdependence as well. The reduction of tariffs and the liberalization of non-tariff barriers, which has occurred under the auspices of the GATT and through regional trading arrangements, has made a significant contribution to the expansion of trade and economic growth in the last 40 years. In addition, and despite periodic stresses, strains and occasional crises in the exchange rate system, the International Monetary Fund (IMF) and other international, financial institutions have facilitated the maintenance of an open trade and payments system. Although there are very limited international arrangements affecting direct investment, the varying degrees of national tolerance of foreign direct investment have permitted the expansion of multinational enterprises, which are significant, international conduits for the movement of goods, services and technology.

In the early post-World War II period, the United States was the dominant economy in the world. In the halcyon days of the 1950s, major U.S.A. manufacturing industries, such as automobiles and steel, were largely impervious to offshore competition. These major, industrial sectors enjoyed economies of scale in production in the United States market that gave them a competitive advantage over producers in third countries. Perhaps it is more significant that U.S.A. multinational firms (or incipient multinational enterprises), were involved in, and exposed to, the large, high-income U.S.A. market, which meant that United States firms were the first to develop new products and production techniques.

The situation was somewhat similar in Canada. The Canadian market, although not as large as that of the United States, was substantial, compared to other major industrial economies, and, as an exporter of resource products, Canada enjoyed a strong economic position, compared to Europe or Japan. For example, in the 1950s Canada was second after the United States in the size of its domestic market for automobiles. During this period of booming exports of resources, the Canadian tariff played an important role in inducing U.S.A. manufacturing firms to set up subsidiaries in Central Canada, rather than exporting from production facilities in the United States.

Today, the world is very different. There has been a dramatic increase in global production and competition. Three sources of growing competition can be identified.

First, competition has increased among the advanced, high-income countries, and there is growing, global rivalry among multinational corporations that are based in Japan, Europe and the United States. The most dramatic development is the emergence of Japan as the second largest national economy in the world. In the 1950s, Japan accounted for about two per cent of GDP in the industrialized countries. By 1985, Japan's share of

GDP in the industrialized countries was 16 per cent, and it is projected to reach 20 per cent this year. The integration of the European market, through the creation of the EEC and the European Free Trade Association (EFTA), and the subsequent linking of these markets through the EFTA-EEC bilateral agreements, resulted in a single market of 350 million people—this was a reality before it was validated by the public relations campaign associated with Europe's 1992 agenda. Large, domestic markets and the higher per capita incomes achieved both in Europe and in Japan, have enabled these economies to offer many of the advantages of economies of scale and innovation to their domestic firms. Thus, European and Japanese industry can now compete much more effectively against U.S.A.-based multinational enterprises in the development of new products and new technologies, so that the protection of intellectual property rights has become a key factor in the global rivalry among multinational enterprises.

Second, high rates of economic growth among the newly industrialized economies (NIE) have altered countries' competitive positions in international trade. Hong Kong and Singapore have enjoyed robust economic growth due to an outward-looking trade strategy. In conjunction with domestic policies that have shifted from an emphasis on import substitution toward export orientation, countries such as South Korea and Taiwan have become powerful competitors in the basic heavy-manufacturing industries. These Asian NIEs have enjoyed higher rates of economic growth than has Japan. The NIEs have diverse domestic policies, social and economic structures, and external trade and payments regimes, yet several of them have emerged as significant, international competitors in industries such as automobile production, steel and shipbuilding, which were traditionally the preserve of industrialized countries. Increasingly, the NIEs are expanding into high-technology industries such as electronics. Mexico, and some of the Eastern European economies that have significant industrial capacity, are shifting to more liberal trade and investment strategies and, thus, could become significant competitors in many industries. As these countries achieve higher degrees of technological sophistication, their ability to encroach upon the markets of the large, multinational enterprises has increased.

Third, a group of countries that have developing economies with large populations are shifting from an agricultural orientation toward more industrial production and trade. Economies such as Thailand, the Philippines, Malaysia, and Indonesia are following the lead given by Hong Kong and Taiwan, in pursuing outward-looking policies and expanding their production and exports in labour-intensive, light-manufactured consumer products. There are incentives for these economies to produce counterfeit versions of brand-name products, in order to expand exports quickly, and they often manufacture duplicates of expensive brand-name clothing and consumer products. Thus, the proposed code on counterfeit goods is now a key issue between industrial economies and developing economies.

The absence of agreed international trade rules for intellectual property, and United States frustration with the existing international conventions governing intellectual property, has moved the United States to act unilaterally to amend both Section 337 of the *Tariff Act* of 1930, which provides for seizure of imports alleged to violate U.S.A. intellectual property laws, and Section 301 of the *Trade Act* of 1974, in the *Omnibus Trade and Competitiveness Act* of 1988. In a number of instances, the United States has threatened (and in a few cases acted) to retaliate against countries that were providing inadequate protection of intellectual property rights.

What is the Optimal Intellectual Property Rights Regime for Canada?

Kenneth Arrow's classic analysis of the economics of intellectual property rights clarifies the complicated trade-offs between consumer and producer interests.[2] A temporary, exclusive use is granted to the developer of a new technology, in order to provide adequate incentives for the firm to make the required investment. The potential complexity is indicated in Glenn Loury's analysis of optimal patent duration, in which he demonstrates that optimal patent life will vary across industries, depending on the scale of investment, and the probability that a firm will win the R&D race.[3]

Much of the analysis of these issues is conducted in the context of a closed economy. The situation is further complicated in the case of an open economy. M. Berkowitz and Y. Kotowitz conclude that economies with domestic firms concentrated in industries that are characterized by imperfect competition will favour strict protection of intellectual property, while economies with highly competitive, innovative activities will favour less protection of intellectual property rights, or shorter patent life.[4] It is noteworthy that the results obtained by Berkowitz and Kotowitz depend upon the characteristics of the economy, not upon its size. Thus, a small economy such as Switzerland, which is specialized in industries like pharmaceuticals, has an interest in protecting intellectual property. The Berkowitz and Kotowitz analysis focuses attention on the taxation of revenues generated by intellectual property rights, arguing that incentives for research and development ought to be linked to ownership of patents so that the revenue stream can be taxed in the jurisdiction granting the incentive.

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[2] See Kenneth Arrow, "Economic Welfare and the Allocation of Resources for Inventions," in *The Rate and Direction of Inventive Activity: Economic and Social Factors*, (National Bureau of Economic Research, Princeton, N.J., 1962), pp. 609- 25.

[3] See Glenn Loury, "Market Structure and Innovation," (*Quarterly Journal of Economics*, 1979), pp. 395-410.

There are several limitations to the Berkowitz and Kotowitz analysis. First, they assume that all of the benefits from the invention will accrue to the patent holder, when empirical studies, such as those conducted by Edwin Mansfield, suggest that patent holders rarely obtain all of the benefits from their patents and that the disclosure requirements of patent laws facilitate reverse engineering and, thus contribute to the diffusion of technology.[5] Second, the ability of patent holders to obtain some of the benefits from the technology often derives from other barriers to entry, and this reduces the economic benefits from limiting patent life to the importing country's jurisdiction. Third, Berkowitz and Kotowitz disregard the effects of IPRs on investment. A jurisdiction providing a shorter patent life, in order to obtain the benefits of faster diffusion, may find that the adverse effect on direct investment, and the resulting loss of tax revenues, offsets the expected benefits from lowering protection for IPRs. Finally, Berkowitz and Kotowitz discount the potential for retaliation by countries that export technology. Put slightly differently, the Berkowitz and Kotowitz argument is a variation of the Brander and Spencer observation that, under certain circumstances, small economies can shift rents from foreign corporations.[6] Such measures are clearly "beggar thy neighbour," whereas reciprocal tariff reductions can benefit all. Of course, Canada, as a net technology importer, can offer improved patent protection as a negotiating chip, in return for reductions in foreign trade barriers and subsidies that adversely affect Canada's terms of trade. Except for pharmaceutical patents, this is not likely to be a very significant negotiating tactic.

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[4] See M. Berkowitz and Y. Kotowitz, "Patent Policy in an Open Economy," (*Canadian Journal of Economics*, 1982), pp. 1-19.

[5] See Edwin Mansfield, "Patents and Innovation: An Empirical Study," (*Management Science*, 1986), pp. 173-81.

[6] See James Brander and Barbara Spencer, "Tariffs and the Extraction of Foreign Monopoly Rents Under Potential Entry," (*Canadian Journal of Economics*, 1981), pp. 371-89.

As with other negotiating chips in international trade negotiations, it may be in Canada's economic interest to alter its policies unilaterally. Canada offers a wide range of tax incentives and subsidies, in order to stimulate research and development. Yet, research and development efforts in Canada lag behind other industrial economies. It might be more cost-effective to scale back fiscal incentives for research and development, and offer more comprehensive intellectual property protection.

The Special Case for Pharmaceuticals

Edwin Mansfield observes that pharmaceutical patents are distinctive in several respects.[7] First, patent protection for pharmaceuticals is relatively effective in protecting the returns to the firm undertaking research and development because there are technical obstacles to reverse engineering. Second, pharmaceutical patents appear to make a significant difference to incentives to invest in research and development. Of course, the second factor is likely to be related to the first factor. The right to patent an innovation may have only a modest influence on research and development in many industries because there are few technical obstacles to designing around the patent, with the result that research and development expenditures become too risky, unless other barriers to entry allow the firm to appropriate the returns.

Harry Eastmann provides a careful and thorough analysis of the economic and financial characteristics of the pharmaceutical industry in Canada.[8] Eastmann proposed a modification of the existing policy of compulsory licensing of imports in Canada by instituting a short period of exclusive patent grant and a fund financed by levies on licensees, to compensate patent holders. The legislation passed by the Canadian government in 1987 provided a somewhat longer period of exclusive patent, but also established a

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[7] See Edwin Mansfield, "Patents and Innovation: An Empirical Study," (*Management Science*, 1986), pp. 173-81.

[8] See Harry Eastmann, *Report of the Commission of Inquiry on the Pharmaceutical Industry*, (Department of Supply and Services, Ottawa, 1985).

Patented Medicines Prices Review Board to monitor prices, and research and development activity by patent holders. In addition, there is provision for differential periods of compulsory licensing for patents based on research conducted in Canada.

Roy Davidson argues that the pharmaceutical patent legislation was an attempt at harmonization with U.S.A. law, in order to obtain the Free Trade Agreement.[9] Ex ante, it appeared possible that pharmaceutical patents were an area where the Free Trade negotiations might require some harmonization.[10] In the end, Canada refused to stop practices that were regarded as discriminatory by the United States and there was no agreement on patent issues in the FTA, except to continue talks in the Uruguay Round.

Potential for Retaliation

The optimal Canadian intellectual policies will be shaped by foreign reaction, particularly in the United States. As the *U.S. National Trade Estimates* report states:

> "In 1988 Canada amended its patent law to provide product patent protection for foods and pharmaceutical products and limit its compulsory licensing provisions. However, this new law still contains compulsory licensing for pharmaceuticals. These provisions are discriminatory since drugs invented in Canada are exempt from some types of compulsory licensing while drugs invented abroad are not. In 1989 Canada was placed on the 'watch list' under the 'special 301' provision of the 1988 *Trade Act* because of the compulsory licensing provisions for pharmaceuticals. Foreign drugs are subject to compulsory licenses immediately if the licensor intends to export the drugs. For products intended for the Canadian market, compulsory licenses are available after 10 years of exclusive use in certain instances."[11]

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[9] See Roy Davidson, "Patents and Copyright: The Tilt in the Level Playing Field," (*Policy Options*, 11:1, January-February, 1990), pp. 24-30.

[10] See Richard Lipsey and Murray Smith (eds.), "Policy Harmonization: The Effects of a Canadian-American Free Trade Area," (C.D. Howe Institute, Toronto, 1986).

[11] See United States Trade Representative, National Trade Estimate Report on Foreign Trade Barriers, (U.S. Government Printing Office, Washington, D.C., 1990).

The United States has demonstrated its willingness to use trade retaliation under Section 301 in order to obtain better protection for intellectual property from foreign nations. In addition, U.S.A. Section 337 actions can be used to harass exporters to the United States who are alleged to have infringed U.S.A. intellectual property rights. It is interesting to note that a Canadian complaint to GATT about Section 337 was unsuccessful in the early 1980s, but that a recent European complaint was more successful. The United States has accepted the GATT panel report, but is delaying implementation of changes in the United States trade legislation pending the conclusion of an agreement on intellectual property rights in the Uruguay Round.

Intellectual Property Rights in the Uruguay Round

Canada's interests in the Uruguay Round are broad and diverse. The Uruguay Round is the most complex and protracted set of multilateral negotiations ever held under GATT auspices. Old problems, such as agricultural trade and safeguards, are difficult to resolve. New issues, such as trade in services, investment and intellectual property, are also likely to present serious difficulties for the negotiations. There are questions about the coverage of these obligations and their interrelationships that will emerge if the Uruguay Round does reach significant agreements across the whole agenda.

Of course, the conclusion to the Uruguay Round may involve plurilateral arrangements among some or all of the industrial countries and some groups of developing countries, but ones that are open to other countries that are prepared to meet the conditions. This plurilateral approach was followed at the end of the Tokyo Round and the result was a series of separate, stand-alone codes, such as the Subsidies Code and the Procurement Code, that have their own dispute-settlement arrangements. The problem with this plurilateral approach is that it would involve limited coverage of developing economies, yet coverage of the developing economies by intellectual property rules is an essential element to the realization of the objectives of industrial countries.

John Jackson has recently observed:[12]

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[12] See John Jackson, *Restructuring the GATT System*, (The Royal Institute for International Affairs, London, 1990).

> "The old comfortable procedures of diplomacy among a small group of similar nations will no longer suffice for the GATT. A rule-oriented 'constitution' is evolving and is badly needed. A successful completion of the very ambitious Uruguay Round will only reinforce that need. (The proponents of an intellectual property agreement in GATT are among those who have made this quite clear.) In addition, such a successful completion will in fact require some fundamental changes in the GATT 'constitution'. The critical question is whether those changes will be carefully thought through or be merely the result of the happenstance of the negotiation end-game."

Will Canada's proposal for a strengthened dispute-settlement mechanism for the GATT, and the development of an institutional framework that could evolve into a World Trade Organization, deflect attention from the real issues in the Uruguay Round?

Progress on strengthening the trading system is inextricably linked to achieving significant trade liberalization for two reasons. First, agreements on services and intellectual property issues are vital to obtaining support for the Uruguay Round package in the United States and Europe. Second, other countries wish to constrain unilateral trade retaliation by the United States. The United States will not accept limits on unilateral retaliation without agreements on these new issues, yet many smaller nations will be unwilling to participate without restraints on unilateral actions. The negotiation of effective trade rules and trade liberalization requires a strengthened institutional framework and dispute-settlement process.

Emerging Issues

Canada has moved, slowly, to provide copyright protection to computer software and has introduced legislation offering sui generis protection to chip topographies. If Canada is to realise even some of its aspirations to develop high-technology industries, it must move quickly to adopt new forms of intellectual property rights, as these emerge in the major industrial economies. To fail to adopt new IPRs, or even to delay in the creation of new forms of intellectual property rights, is to impede the capability for innovation in the Canadian economy. For example, if Canada had moved more quickly to introduce protection for computer software, the development of independent, computer software boutiques in Canada could have been stimulated. In the future, for example, the articulation of IPRs for life forms could be vital to the development of commercial spinoffs from biotechnology.

Instead of diluting intellectual property rights across the board, the current view among economists stresses that limitations to IPRs should be derived from application of competition policies, or be focused on specific user interests. For example, libraries and educational institutions have some legitimate concerns about Canada's new copyright laws, but special exceptions to the copyright law for educational and public interest purposes should be clearly defined and limited.

Conclusion

In its sometimes contradictory efforts to promote innovation and to limit intellectual property rights, Canada ought to focus more attention on ensuring that incentives for research and development lead to the holding of intellectual property rights that are taxable in Canada and it should be recognized that protection of intellectual property rights could be a very cost-effective innovation policy. Except for pharmaceuticals, the terms of trade losses to Canada from stricter protection of intellectual property rights are likely to be negligible. In the GATT negotiations, Canada ought to be prepared to offer greater protection for pharmaceutical patents, in order to obtain better access to offshore markets and to obtain the reduction of agricultural subsidies and trade barriers that are damaging Canada's export prices and volumes. An overriding Canadian interest is to obtain more effective multilateral rules and dispute-settlement procedures for intellectual property issues, as well as for trade issues more generally in order to contain unilateral pressures from major trading partners. Even if there is only limited progress on these issues in the Uruguay Round, Canada will face some challenges in designing new forms of intellectual property rights and in focusing the limitations of these rights on specific competition policy considerations and consumer interests.

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VI.

Evolving Intellectual Property Systems and International Negotiations

A European Perspective on the Evolving Intellectual Property System

Gilles Y. Bertin

The discussions at GATT dealing with the "trade-related aspects of Intellectual Property rights" are of utmost importance to European countries. There are two reasons for their concern. First, Europe, as one entity, is one of the principal global partners in the negotiations. Second, since October 1977 European countries have been moving toward extensive changes in the various fields of IP; they also hope to achieve economic and political unity by January 1, 1993. These concerns will be reflected in their position in current and forthcoming negotiations.

The EEC does not encompass all of the countries of Europe. The European Patent Organisation (EPO) includes additional countries that do not belong to the EEC: Austria, Switzerland and Sweden. The EFTA also includes non-EEC member states that have bilateral free trade agreements with the Community. The East European countries—East Germany, Hungary and Czechoslovakia—are looking for future integration or association with the EEC. All of these states should be included when speaking of Europe as one entity. But whatever the geographical content or measuring standards are (including IP indicators), Europe's contribution to world production, trade and research is considerable. Among the triad group in 1987, Europe ranked first in population, and second to the U.S.A. in terms of gross domestic product (GDP). It represented about 35 per cent of total world trade—15 per cent if we exclude intra-EEC trade—and is comparable to the trade conducted by Japan and the United States. As to IP figures, Europe filed some 110,000 patent applications a year—less than the Japanese, but higher than the United States and other countries. It represented 20 per cent of total world applications, excluding Eastern countries. The figures ranked approximately the same for other IP indicators, but were weaker as far as copyright protection and semi-conductor protection were concerned.

To an outside observer, Europe looks like a patchwork. EEC or EPO countries still have their own national laws, and noticeable differences persist between systems built on different economic and legal backgrounds. Patent legislation gives a good illustration of such divergences. Some countries—FRG, The Netherlands and Sweden—have strong examination systems, while the United Kingdom, France and Southern countries have weak ones. Similar differences appear in most IP fields.

This situation has been evolving continuously for the last decade and is gaining momentum as the crucial date of January 1, 1993, draws near. At present, most patent filings to other European countries take the so-called "European way" through unique filing, allowing less than 15 per cent of the applications to go through the classical, national system. But now the "community patent," which will provide one unique protection for all EEC countries, has come through decisive steps in 1989. Although some member states will not be able to ratify it before the end of 1992, the system will come into force for at least 6 or 7 countries before the end of 1991. Meanwhile national legislation is being adjusted to ensure better convergence and to prepare for European competition within the enlarged system. A similar trend can be observed in other IP fields. Final agreement on future technical work still falters on highly political matters. Examples are the number of authorised languages to be used—it could range from 2 to 9—and the location of the future European Trade Mark Office (ETO). In the difficult field of software protection, a strong convergence of national protection is now underway. However, final European agreement has been reached on the crucial IP regime of broadcasting, although a common position has not yet been worked out. The difficulties arise partly from the impatience of extra-EEC partners, mainly United States firms.

Some conclusions may be drawn from such a unifying move:

- Although differences will still subsist in national legislation, they will not hamper or distort the conditions of protection and trade within Europe, whatever the origin and location of operating companies.
- Other countries, especially East European states, are likely to adopt legislation very similar to that of Europe and conform with international standards—this could apply to Czechoslovakia, Hungary, Poland, Yugoslavia and, of course, East Germany, which is expected to join the West German system.
- Some countries will not conform to EEC standards for IP: Denmark or Ireland for legislative reasons, and Spain, Portugal, Greece and possibly Italy because they are reluctant to adopt some parts of the projects.

The European attitude at the final meeting of the Uruguay Round hinges on two major points. First, it seems advisable to come to some type of agreement on IP as part of a more general agreement on the conditions of trade, etc. Second, IP agreement should not, however, be reached on any condition and Europe will be watchful of the terms of the agreement, although some decisive steps have recently been made at the Geneva and Mexico meetings.

Some key considerations follow:

- Both a remodelling and adaptation of the various aspects of IP rules, as well as strengthening of the sanctions, are needed. It is probably just as well that IP policy has been dealt with apart from other strategic issues—tariffs, quotas, subsidies, sanitary regulation, etc. On one side, IP regulations and instruments are increasingly used as substitutes to trade barriers and should be controlled. Conversely, they cannot be dealt with on a simple, non-technical basis because of the long-term consequences they may induce, not only on trade but also on international investment, transfers of techniques, etc. At least some fundamental principles should be clearly defined and agreed upon. They should help make trade easier and prevent or reduce trade distortions, whatever their origin. This was underlined by the Union des Industries de la Communauté Européenne (UNICE) when it stated that "it is a necessity to obtain an agreement which guarantees a level of protection for IP rights necessary to reduce distortions and impediments to international trade."

- New, international IP rules should be conceived on a universal basis, as recommended by the initial members to the Union of Paris. This implies that agreement should be reached, whenever possible, on a multilateral basis. Accordingly, regional systems of IP protection such as the European patent system, the Madrid arrangement on trade marks, and any forthcoming agreements in other parts of the world (i.e., Asia or Latin America) are nothing more than substitutes for multilateral agreements and should comply with their rules. At the same time, permanent discrimination or separate IP regulations should not be allowed, with the possible exception of extreme urgency and that would have to be limited and strictly defined.
- Any agreement on the rules or conditions should be obtained on the basis of reciprocity, which means that a potential advantage would not be sought against some other gain, but that the resulting economic situation would be equilibrated for mutual gains for all member countries.
- The decisions taken should respect both internal and external coherence. Internal coherence is the definition of principles and standards to be applied to all IP instruments. It means that no field of IP should be given preferred treatment in the negotiation process. For instance, the IP standards required, say, for topographies, should not be more detailed in the IP agreement than those for trade marks. The aim of the Conference is to set IP roles and basic principles. The definition of detailed standards should be dealt with at future meetings. Also, some sectors need multi-protection and that protection should be given industrial treatment in the IP discussions. External coherence means provisions or general standards retained for protection of IP rights should not be in opposition to other decisions retained in the field of trade protection, etc. Any limitation of compulsory licensing should not be replaced by more restrictive conditions on direct investment operations.

Europe will pay special attention to possible deviations from the agreed position on IP. The key differences are:

- Some countries are trying to establish standards fitted to their own national economic interests as universal rules. This is not surprising in this type of negotiation, but it is unlikely to be accepted because it does not allow for balanced agreement. Among such differences are the position of the

United States on protection of semi-conductor products (the so-called Washington Treaty of 1989); the extension of the term protection of patent in the pharmaceutical industry, which could last well beyond the 22 years of protection officially recognized in U.S.A. patent legislation; the changing procedure of patents where the United States moved away from a "first to invent" position to the generally accepted "first to file" system—a step that was considered positive by European representatives—then they reverted to the older formula; and the attitude of developing countries on compulsory licensing, etc.

- In a similar way, some countries (mostly Asiatic) display little coherence between general agreement with IP international protection principles and their behaviour in aligning national IP systems with these principles or in enforcing the existing rules to combat trade in counterfeit goods.
- Countries with restrictive systems on the use of IP instruments (such as a few developing and Eastern countries) should not expect to be given by European countries the same conditions for technical transfers. Though transfer provisions are largely a private matter, firms are discouraged from transferring technologies to countries where protection is weak or uncertain.

The United States Perspective on Intellectual Property and the GATT

Charles Levy

The Canadian government has recently released a report on intellectual property, which noted that strong IP laws in Canada and among Canada's trading partners will have a significant impact on Canada's economic future. This approach is not typical of the attitudes I have encountered over the last four or five years in my work on intellectual property issues. Indeed, about four years ago I went to the United Kingdom with some of my IP clients to talk to European governments and businesses about the importance of negotiating intellectual property in the GATT. I knew we were in trouble at a meeting with the Confederation of British Industries when we listened to attacks on the United States government and business community, during which we were told we were stupid to suggest that intellectual property could be negotiated in the GATT. The discussions that have taken place over the last two days, and the Canadian government report as well, indicate we still have a long way to go in the negotiations, but at least I don't think anyone will now say we're stupid for working on the framework for discussions. The Canadian government report referred to the U.S.A., Japan and the EEC as the "demandeurs" in GATT.

There have been extensive discussions between the United States and the EEC on these negotiations, both in the private sector and between our respective governments. The Intellectual Property Committee recently spent some time with the European negotiators, who were discussing their new intellectual property submission to the GATT. They deserve credit for the work they have been doing on this issue. They pointed to the convergence that took place between the United States and the EEC, but they went to great lengths to explain to us that there were a number of areas where the EEC disagreed with the United States government and business community and that those areas were non-negotiable. I said I viewed this as a further degree of convergence since formerly it was only the United States that took non-negotiable positions, now that the EEC and the United States were both taking non-negotiable positions we could get down to business. This remark elicited a smile from their chief intellectual property negotiator, and he does not smile very often.

In looking at how we got to where we are today and at where we are going, it is important to focus on two concepts—interdependence and globalization—that we have heard a lot about over the last several years. A decade ago, when people began discussing interdependence and globalization and what could be done within the system, it was an academic concept that policy-makers and government officials used to frighten people. Today, it is a reality. Companies must be global if they wish to succeed. Interdependence and globalization are now recognized by both countries and companies, and the fact that we are negotiating new issues in the GATT highlights the need to keep these concepts in mind.

When we began to examine these concepts in the Intellectual Property Committee, to which I am Counsel—and to think about how to deal with intellectual property multilaterally, we began to focus very quickly on intellectual property laws, which are dealt with primarily at the national level rather than at the international level. While there are a number of international agreements in the intellectual property area, minimum standards of protection are not included. Instead, countries rely primarily on national laws, which provide one year of patent protection for your own company and which can then be applied to other companies. In the last decade, international agreements have not had enforcement procedures and efforts to revise international agreements in the intellectual property area have focused on this issue, rather than on how to make intellectual property protection more effective. Another aspect of this issue is the recognition that there were some trade distortions. I am not sure I would agree with the $40 billion figure the United States government uses, but there certainly are significant trade distortions due to lack of intellectual property protection.

That led us to look at what we could do to improve intellectual property protection internationally. We focused on the GATT negotiations for a variety of reasons. There was the linkage between trade and intellectual property protection, particularly with regard to distortions that are due to lack of protection and, perhaps, to over protection. Second, I think the United States government and business community would prefer having a multilateral solution to having a bilateral solution. Third, GATT has a much different negotiating dynamic than has WIPO, and it was felt we were more likely to make progress in GATT. Fourth, GATT has established consultation and dispute-settlement procedures that could provide a basis for an enforcement mechanism for intellectual property. Another advantage of the GATT is that a time limit is placed on the successful conclusion of the GATT negotiations. The United States government and business community worked with other governments to have intellectual property placed on the ministerial agenda at Punta del Este and, as David Lee pointed out, it was the concept of those negotiations, and the subject was incorporated as part of the mid-term review.

The essential elements of a comprehensive agreement on standards for intellectual property protection and enforcement provisions are: countries should be required to have domestic, judicial procedures (viewed by most businesses as the most effective way of stopping the production of infringing goods before they enter the market), and there should be some form of border controls.

When the Intellectual Property Committee entered into discussions with the European and Japanese business communities, Section 337[1] was one of the first issues discussed. The Intellectual Property Committee acknowledged and agreed to changes in Section 337 as early as June 1988 and those changes are reflected in the GATT panel report. The United States is currently exploring options to amend Section 337 in order to conform to the GATT panel report. President Bush issued a statement in November 1989 with respect to Section 337, in which he stated

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1. Section 337 of the *Tariff Act* of 1930 provides domestic producers with relief from competition from imports that are alleged to be in violation of United States intellectual property laws.

that enactment of amendments to Section 337 could most effectively occur through Uruguay Round implementing legislation. If the Uruguay Round does not succeed, it is highly unlikely there will be any changes to Section 337. If there is implementing legislation for the GATT Round and a good TRIPS agreement results, I will stake my reputation on saying Section 337 will be amended.

The final element the United States will look for in a GATT Agreement is a multilateral and dispute-settlement procedure, and the application of the GATT principles of transparency, national treatment and non-discrimination. Certainly, the Intellectual Property Committee, and other business groups in the United States, have recognized there will have to be some form of special treatment for developing countries. This condition is very important from our perspective, and the EEC and other countries are beginning to recognize this as well. However, special treatment should be transitional. Lower standards for developing countries should not be written into the Agreement. There should be a set of standards written that developing countries would not have to adopt when the Agreement is negotiated. They could keep their current systems and, over an agreed period of time, move forward to the higher standards encompassed in the Agreement. This is different from the way GATT currently deals with developing countries—it now gives them a blanket exception that they rely on continually, never moving beyond their exceptions. Transition will be the key issue for developing countries.

The United States Intellectual Property Committee and, I think, our government as well believe that we should not ignore WIPO. It has a very important role to play in harmonizing global efforts with respect to intellectual property and technical assistance. We do not view GATT as a substitute for WIPO, they complement each other.

Looking ahead, I take a balanced view of where we are headed in GATT. I don't know how the TRIPS negotiations will turn out. There is a convergence happening among the industrialized countries and we are beginning to hear some positive comments from certain developing countries, but we have not yet reached the point where we can say the negotiations will be successful.

Something else is happening, however, which perhaps the GATT negotiations will further and that is some countries, on their own initiative, are moving to increase their protection. The United States has entered into bilateral trade investment agreements with Poland and Czechoslovakia, in which both countries have essentially agreed to adopt western standards of intellectual property protection. Similar negotiations are going on with Hungary, the Soviet Union, Bulgaria and Rumania, and our negotiators tell me the United States did not apply a lot of pressure. Poland and Czechoslovakia came in with those positions and only some of the details had to be negotiated. Mexico has taken a decision to move ahead with intellectual property protection that includes chemicals and pharmaceuticals. I am told that President Salinas made a recent visit to Europe, after which he expressed concerns about developments in Eastern Europe. He felt the global competition for investment was going to be so intense between Eastern Europe and other developing countries in the next decade that Mexico had to create an investment environment in which they could market their products aggressively, and he realized that intellectual property was the key. In the future, countries that want to build investment environments and obtain technology will make provisions for intellectual property protection. The GATT negotiations and the harmonization negotiations at WIPO are in progress, and the market is beginning to function. However, that is not enough. We have problems with respect to globalization and interdependence in the industrialized countries, but we should not lose sight of the fact that, if our countries are interdependent and if companies are becoming global, we will have to focus on how we deal with some of the very special problems that exist among the western, industrialized countries, whether it is harmonization, mutual recognition or something else. That will be the new element that comes out of negotiations whatever happens in Geneva later this year, and in Brussels where it will all finish up.

The North-South Debate on Intellectual Property Rights

Carlos Alberto Primo Braga

Introduction

Trade-related aspects of intellectual property rights have become one of the most controversial items being negotiated at the Uruguay Round. The history of initiatives to promote universal protection of IPRs is full of failed attempts.[1] Present discussions at the GATT level are even more complex, given their ambitious coverage, the many challenges posed by new technologies—particularly, in the information industries and in biotechnology—and the widespread perception that the United States is trying to translate its domestic provisions into international standards.

The economic relevance of TRIPS negotiations increased significantly with the "marriage of convenience" between IPRs and trade laws in the United States and in the European Economic Community during the 1980s.[2] Most developing countries, however, have reacted strongly to external pressures, focusing on the inadequacy of their IPR systems.[3] And even though the multilateral debate goes well beyond the "North-South divide," as can be seen in the GATT panels on Section 337 of the United States trade law, the TRIPS negotiations have often been referred to as a confrontation between "haves" and "have-nots" in the technological realm.

This paper analyzes the rationale for the resistance of developing countries to stronger IPRs on a global scale. It is argued that this resistance reflects a mix of ideological beliefs, negotiating tactics, and economic considerations. The latter, however, have gradually become the major factor framing the position of developing countries. The implications of unilateral trade retaliation by developed economies have forced developing countries to adopt a more utilitarian approach with respect to TRIPS. The reliance on unilateralism (or, put more bluntly, on power diplomacy) by developed economies, however, endangers the multilateral system itself. Unilateralism may have been useful in providing a sharper economic focus for the debate, yet, the lack of definite economic answers for the questions raised by IPRs suggests that substantive progress in the final stages of the GATT negotiations will require that multilateral "carrots" be added to the "stick" of unilateralism.

The Rationale for Resistance

One can classify the main arguments used by developing countries in opposing the United States agenda on TRIPS into three basic categories: ideological arguments, tactical considerations, and economic calculus.

Ideology and IPRs

The perception that strengthened IPRs would basically hamper the diffusion of knowledge from the North to the South—its being tantamount to a sophisticated, new form of colonialism—has always been a popular concept in developing countries. According to this view, the United States negotiating proposals with respect to TRIPS (and also for services) are a disguised attempt to preserve for the developed world activities that are knowledge-intensive.[4] Almeida suggests that "the intended reform in the world intellectual property system constitutes a new modality aimed at countering specific, technological developmental policies of technological protectionism, in some industrializing countries."[5]

This perception is closely related to the dependency literature that was fashionable in the 1970s. In this literature, technological transfers from developed to developing economies "either by means of direct investment by multinational companies (MNCs) or by means of licensing of local enterprises" would serve "to perpetuate the inequitable distribution of income and to fulfil the consumption demands of the elites" in the periphery.[6] Therefore, a developing country would only foster the negative implications of inadequate technological transfers by protecting IPRs.

Needless to say, this approach is an intellectual dead end as far as the design of negotiating strategies is concerned. It may provide for powerful rhetoric, but it does not offer any useful guidance for negotiating TRIPS.[7] After all, if policy-makers in a developing country do accept the dependency proposition, then they are implicitly denying the usefulness of a market for knowledge. Therefore, there are no grounds for negotiations. If, on the other hand, a watered-down version of dependency is adopted, focusing on the issue of market power, then the debate is more properly developed in the context of the economic analysis discussed below.

Side by side with dependency considerations, ethical arguments have also been raised by Third World policy-makers. A good example is provided by Indira Gandhi at the World Health Assembly in May 1982: "The idea of a better-ordered world is one in which medical discoveries will be free of patents and there will be no profiteering from life and death."[8] Implicit in this type of evaluation is the perception "of technological innovation as a public rather than a private capital good."[9] This argument is equivalent to assuming the superiority of non-market solutions (such as public provision) for the supply of essential products. It underscores the doubts that many developing countries have on the proper functioning of markets—particularly, the market for knowledge. Yet, as in the case of the dependency argument, it does not provide guidance for trade negotiations based on market considerations.

Tactical Reasons[10]

Discussions on TRIPS at the GATT level have been growing in importance since the late 1970s. The failed U.S.A. attempt to garner support for an Anti-Counterfeiting Code during the Tokyo Round and the initiation of several IPR-related GATT panels in the 1980s underscore this trend.[11] In the Uruguay Round, the main point of conflict between developed and developing economies has been the proposition, backed mainly by the United States, that GATT "negotiations should pursue the establishment of substantive standards for intellectual property rights protection on a worldwide basis."[12]

The rationale to develop multilateral disciplines for IPRs at the GATT level has been presented in different ways. For instance, R. Stern points out that discrepancies among national IPR systems can generate effects analogous to non-tariff barriers (NTB).[13] A producer of a good that is knowledge-intensive in a country with high standards of IPR protection would be afraid to export to a country with inadequate protection, given the danger of piracy. R.M. Sherwood suggests that lack of appropriate protection may induce fluctuations in the value of "products of the mind," which could be considered "by extension . . . contrary to the spirit and provisions of Article VII (Valuation for Customs Purposes) and its implementing code . . . ."[14] The lack (or the instability) of IPR protection would diminish (or make unstable) the economic rents that would otherwise accrue to the holder of the intellectual property right, thereby hampering trade opportunities. Finally, R.M. Gadbaw and R.E. Gwynn have suggested that defective IPR systems may nullify or impair "the benefits a country could expect to receive from its trade concessions . . . ."[15] The United States, for instance, could have exchanged tariff concessions in raw materials for equivalent concessions for importation by another contracting party of products that are knowledge-intensive. An eventual weakening of the IPR system of the latter, however, might curtail the benefits that the United States expected from the negotiation by fostering piracy. Accordingly, the United States should be allowed to invoke GATT Article XXIII (Nullification or Impairment) and suspend the application of previous concessions.

There is an important difference between the rationales described above. Stern's analysis simply provides an argument for the establishment of GATT disciplines for IPRs. The other two propositions are more specific to the extent that they suggest that defective IPR systems should be "GATTable." I have criticized the relevance of these propositions for the ongoing negotiations at the Uruguay Round.[16] It is sufficient to point out that most analysts do agree that defective IPR systems are not "GATT-cognizable" in the context of the General Agreement's original coverage of IPRs.[17] From a mercantilistic perspective, it can be argued that developed economies will have to pay (e.g., by offering trade concessions in other areas) in order to establish international IPR standards at the GATT level. Hence, one could also rationalize developing countries' opposition to stronger IPR protection as a bargaining tactic to extract substantial trade concessions from developed economies.

Economic Arguments

There has been significant analysis of the costs and benefits that a developing country would face in strengthening its IPR system.[18] Typically, the main costs considered include: "the administrative and enforcement costs associated with reform; the increase in payments for foreigners' proprietary knowledge; the costs of economic displacement of pirates; the cost of additional domestic R&D; and the loss in consumer surplus generated by the anti-competitive aspects of such measures. The main benefits are the cost savings derived from additional domestic R&D and the disclosure of new knowledge; positive contributions to world technological dynamism; benefits from additional technological transfers; and more capital formation in knowledge-intensive sectors."[19]

Empirical research dedicated to quantifying the net impact of these factors in a developing economy is still in its infancy. Two propositions, however, are commonly accepted: the benefits a country extracts from the protection of IPRs tend to increase as the country develops;[20] most developing countries would incur a net loss in the first stages of an IPR reform, since "while the costs associated with the reform would be immediately felt, the benefits would take time to materialize."[21] Accordingly, the economic effects of strengthening IPRs will not only vary significantly across countries, but also the net results will be quite sensitive to the time frame of analysis and the rate of discount utilized.

The lack of definite knowledge on the economic implications of IPRs in developing economies would explain per se the resistance to reform from the point of view of an utilitarian analysis. It is also worth mentioning that the political economics of the process is such that even if a clear case based on economic self-interest could be developed, domestic support for reform would face strong opposition. While most benefits from the point of view of national interests would be diffused over time (e.g., higher investment in areas that are knowledge-intensive and, potentially, higher rates of growth) or would primarily benefit multinational corporations, the costs would be "immediate and focused on very specific sectors (those dedicated to piracy)."[22]

The difficulties in building a strong economic rationale for protection of IPRs in the Third World has not helped the United States agenda. The relevant utilitarian calculus that a developing country faces has, however, been significantly altered by the "marriage of convenience" between trade law and IPRs in developed economies. The possibility of trade retaliation for piracy provides a strong, additional incentive for outward-oriented countries to reform their IPR systems. At the same time, it creates a new challenge for the GATT system.

Prospects for the TRIPS Negotiations

The previous section reviewed the main arguments that can be raised to explain developing countries' resistance to higher international standards of IPR protection. The recognition that economic theory does not provide clear-cut recommendations on the implications of IPRs for developing countries should not, however, be construed as an argument for a strategy of blockade in the area of TRIPS. Developing countries have to consider what the implications of failure in these negotiations and an eventual breakdown of the Uruguay Round will be. It is important to remember that the best advertisement of the GATT system is provided by its most significant failures: highly distorted trade in agricultural products and in textiles.

One should not expect the pressures in favour of higher IPRs to abate in the near future. On the contrary, as trade in products that are knowledge-intensive grows in importance, trade-related IPR frictions will also increase. In the absence of acceptable multilateral disciplines for IPRs, these frictions will probably translate into more unilateral actions by developed countries. This could be quite harmful not only for the countries involved in trade retaliation, but also for the credibility of the GATT system as a whole.

It is against this background that all contracting parties should re-evaluate their strategies for the final months of negotiations in the Uruguay Round. In some areas, such as the establishment of rules to discourage trade in counterfeit goods, the negotiations have progressed significantly. The issue of substantive standards, however, remains quite contentious.[33] If developed economies intend to garner enough support for a GATT amendment, either they will have to offer substantive concessions in other negotiating areas, or they will have to weaken the standards of protection that are being pursued. The ability of developed economies to work as an effective coalition is being eroded by problems in other areas—particularly in agriculture. The option of setting weaker standards, in turn, would probably fall short of providing a workable multilateral framework for IPRs from the perspective of the developed world.

A code on IPRs, with substantive standards of protection, could also be an alternative. The codes negotiated during the

Tokyo Round, however, have not been successful. It would seem that the GATT Secretariat does not favour a code solution for IPRs or for any other subject being negotiated at the Uruguay Round. Yet, one can imagine that an IPR code would be a feasible alternative, as long as some critical developing nations—basically, those identified as newly industrialized countries—can be persuaded to accede. This, in turn, would depend on packages that include concessions, and on the relevance of the threat of unilateral retaliation from the point of view of each one of these countries.

Conclusions

For those concerned with the future of the multilateral trade system, a successful outcome would be an agreement that is able to deliver substantive standards for IPR protection and that would curb the temptation for unilateral action and, at the same time, would not alienate most of the developing economies. It is difficult to be an optimist with respect to the results of the negotiations at this point in time. Yet, to the extent that developing economies have become much more conscious of the importance of the GATT system over the last few years, there is some cause for hope. The main challenge ahead is for the industrialized countries to fashion a package of cross-concessions that would include sufficient economic incentives to entice developing countries into reforming their IPR systems.

Notes

1. K.M. Meessen, "Intellectual Property Rights in International Trade," (*Journal of World Trade Law*, 21, 1, 1987), pp. 67-74.
2. R.M. Gadbaw, "Intellectual Property and International Trade: Merger or Marriage of Convenience?" (*Vanderbilt Journal of Transnational Law*, 22, 2, 1989), pp. 223-42.
3. The expression "IPR system" is used to summarize the array of legal instruments of protection available (patents, copyrights, neighbouring rights, trade marks, plant breeders' rights, trade secrets, etc.), as well as the overall character of administrative and enforcement practices in a given country.
4. President Jose Sarney's announcement of Brazil's National Informatics Plan in 1985 explicitly mentions the threat of "scientific and cultural colonialism," as S. Bradford points out in, "Brazil, the GATT and Services," (*Third World Affairs*, 1987), p. 73. See also C.A. Primo Braga "Brazil," in P.A. Messerlin and K.P. Sauvant, eds., *The Uruguay Round: Services in the World Economy*, (Washington, D.C., The World Bank, New York, United Nations Centre on Transnational Corporations, 1990).

5. P.R. Almeida, "The 'New' Intellectual Property Regime and Its Economic Impact on Developing Countries: A Preliminary Overview." Paper read at the Conference on the Uruguay Round of GATT and the Improvement of the Legal Framework of Trade in Services, (Bergamo, Italy, 21-23 September 1989).

6. S. Lall, "Is 'Dependence' a Useful Concept in Analysing Underdevelopment?" (*World Development*, 3, 11 and 12, 1975), pp. 799-810.

7. It is worth mentioning that the same type of criticism does apply to attempts to use the arguments of natural law in international negotiations on IPRs. As I have pointed out, "any attempt to present a country's intellectual property system as a model of 'enlightened' virtues is bound to face a great deal of scepticism in the Third World." C.A. Primo Braga, "The Economics of Intellectual Property Rights and the GATT: A View from the South," (*Vanderbilt Journal of Transnational Law*, 22, 2, 1989), p. 253.

8. R.M. Gadbaw, and L.A. Kenny, "India." In R.M. Gadbaw and T.J. Richards, eds., "Intellectual Property Rights: Global Consensus, Global Conflict?" (Boulder: Westview Press, 1988), p. 86.

9. Centre for Economic Development, "Breaking New Ground in U.S. Trade Policy," (Washington, D.C., Centre for Economic Development, 1990), p. 104.

10. This section relies extensively on C.A. Primo Braga, "Traps in the Negotiations of TRIPS." Paper read at the 64th Annual Western Economic Association International Conference, Lake Tahoe, CA., (18-22 June 1989), and C.A. Primo Braga, "Propriedade Intelectual, Comercio Internacional e os Paises em Desenvolvimento," (*A Insercao Internacional do Brasil nos Anos 90*, vol. 2., Sao Paulo, CRE and SEADE, 1990).

11. For further details see A.J. Bradley, "Intellectual Property Rights, Investment, and Trade in Services in the Uruguay Round: Laying the Foundations," (*Stanford Journal of International Law*, 23, 1987), pp. 57-98, and D. Hartridge and A. Subramanian, "Intellectual Property Rights: The Issues in GATT," (*Vanderbilt Journal of Transnational Law*, 22, 4, 1989), pp. 893-910.

12. See C.A. Primo Braga, (December 1990), "The Developing Country Case for and Against Intellectual Property Protection." In W.E. Siebeck, ed., *Strengthening Protection of Intellectual Property in Developing Countries: A Survey of Literature*, (Washington, D.C., The World Bank), p. 85.

13. R. Stern, "Intellectual Property." In J.M. Finger and A. Olechowski, eds., *The Uruguay Round: A Handbook on the Multilateral Trade Negotiations*, (Washington, D.C., The World Bank, 1987).

14. R.M. Sherwood, "Thoughts on IP in the GATT." (Unpublished manuscript made available by author, Alexandria, VA, 1987).

15. R.M. Gadbaw and R.E. Gwynn, "Intellectual Property Rights in the New GATT Round." In R.M. Gadbaw and T.J. Richards, eds., *Intellectual Property Rights: Global Consensus, Global Conflict?* (Boulder, Westview Press, 1988), p. 44.

16. C.A. Primo Braga, "Traps in the Negotiations of TRIPS," pp. 243-64, and "Propriedade Intelectual, Comercio Internacional e os Paises em Desenvolvimento."

17. R. Stern, "Intellectual Property," and R. Hudec, "Remarks," (*Vanderbilt Journal of Transnational Law*, 22, 2, 1989), pp. 321-23, and J.H. Jackson, "Remarks," (*Vanderbilt Journal of Transnational Law*, 22, 2, 1989), pp. 343-55.

18. The theoretical literature on the welfare effects of increasing IPR protection at the international level has also expanded significantly over the last few years. See, M.K. Berkowitz and Y. Kotowitz, "Patents Policy in an Open Economy," (*Canadian Journal of Economics*, 15, 1, 1982), pp. 1-17; J.C. Chin and G.M. Grossman, "Intellectual Property Rights and North-South Trade," (National

Bureau of Economic Research, Working Paper Series no. 2769, November 1988); A.V. Deardorff, "Should Patent Protection Be Extended to All Countries?" (Institute of Public Studies, Working Paper, Ann Arbor, The University of Michigan, 1990); I. Diwan and D. Rodrik, "Patents, Appropriate Technology, and North-South Trade," (PRE Working Paper Series no. 251, Washington, D.C., The World Bank, 1989); E. Mansfield, "Protection of Intellectual Property Rights in Developing Countries," (Washington, D.C., The World Bank, 1989); C.A. Primo Braga, "The Economics of Intellectual Property Rights and the GATT: A View From the South;" R.M. Sherwood, "Intellectual Property and Economic Development," (Boulder, Westview Press, 1990); W.E. Siebeck, ed., forthcoming, "Strengthening Protection of Intellectual Property in Developing Countries: A Survey of Literature," (Washington, D.C., The World Bank); and A. Subramanian, forthcoming, "The International Economics of Intellectual Property Right Protection: A Welfare-Theoretic Trade Policy Analysis," *World Development*.

19. C.A. Primo Braga, forthcoming, in W.E. Siebeck, ed., "Strengthening Protection of Intellectual Property in Developing Countries: A Survey of Literature," p. 73.

20. E. Mansfield, "Protection of Intellectual Property Rights in Developing Countries", and, for a critical evaluation of this proposition, see Sherwood, "Intellectual Property and Economic Development," Chapter 7.

21. C.A. Primo Braga, "The Economics of Intellectual Property Rights and the GATT: A View From the South," p. 258.

22. Ibid., p. 262.

23. It is worth mentioning that the conflict does not always fit the North-South characterization. First-to-invent versus first-to-file rules for the granting of patents and the issue of moral rights in the context of copyrights are some examples of the disagreements that also involve developed countries in the TRIPS negotiations. See K.E. Maskus, "Intellectual Property." In J.J. Schott, ed., "Completing the Uruguay Round," (Washington, D.C., Institute for International Economics, 1990).

The Canadian Perspective on the GATT TRIPS Negotiations

David Watters

I would like to focus my remarks on the GATT TRIPS negotiations, and to look at them from a Canadian perspective. I would like to begin with a quotation from Picasso. He once said, "that every act of creation begins first with an act of destruction." This statement is relevant because we are looking at the transformation of the current international, intellectual property system. We are looking at the creation of new rules, and possibly new institutions, to regulate intellectual property. I am concerned that we do not destroy the old intellectual property order until there is a reasonable probability that the new one will actually work. How do you jump from one intellectual property system to another?

To answer this question, I would like to develop an analogy to western films of the past. Usually about two-thirds of the way through these films there would be a heroine aboard a stagecoach, and the driver would be injured. All of a sudden the stagecoach would run out of control. Six horses would be thundering down a dusty road, and the heroine would be in peril. Then, a hero would appear on another horse. He would begin to pull up beside the stagecoach. His job was to jump from one horse to the others and to save the heroine. In terms of the analogy I am using, I think the heroine to be saved is the pharmaceutical industry.

Let us now look at the four rules of horse jumping. The first one is: you only get one chance. The second is: it does not really matter which of the six horses you jump onto. The third is: there are no Olympic judges marking the finesse with which you jump from one horse to another. The fourth is: do not wait too long because there is a cliff a half-mile ahead. I am using this analogy because I believe the expectations of securing a "perfect TRIPS Agreement" in the GATT Round are already out there. We have seen some very detailed submissions and, although I realize the United States is in the process of refining its submission, I am apprehensive that there may be a tendency to look for the perfect jump (i.e., for the perfect Agreement) when that is not necessary. I think we should be content with establishing a set of basic TRIPS rules in the GATT. Once that has been accomplished, we can begin to look at the process of refining them over time.

I would now like to take you inside the closed doors of GATT Negotiating Group Number Eleven on TRIPS to see whether there is a reasonable expectation of arriving at a basic GATT TRIPS Agreement. As you walk into the negotiating room, you will notice that there are three groups of countries within the room—the developed countries, the newly industrialized countries and the developing countries. In front of these countries, on a common table, are three very large piles of issues. It is interesting to note that the GATT Secretariat recently summarized the number of outstanding issues that have to be negotiated and concluded that there are five hundred. The issues essentially deal with the areas of standards, enforcement and institutional matters, including dispute settlement.

In the area of standards, major issues have to be resolved. It must be decided how comprehensive the agreement should be. Most countries in the developed group want an agreement that would cover patents, copyright, industrial designs and trade marks. Some, to a greater or lesser extent, also want to cover neighbouring rights, appellations of origin, trade secrets and semiconductor chip protection. However, the scope of an eventual agreement is under debate and we have, for example, heard some comments on the relevance of trade secrets.

The second issue is whether we are going to redesign the entire system of intellectual property conventions or whether we are only going to add to the system where there are believed to be inadequacies. There is a range of viewpoints on this issue. One of the fundamental debates centers on the adequacy of the Berne Convention. A majority of developed countries feel it is adequate and can be added to as appropriate. At the same time, developing countries are asking whether we should only be concerned with the trade-related aspects of intellectual property? It is very difficult to draw a line when looking at national standards and international agreements, but the mandate of the negotiating group is limited. Another question concerns the connection between GATT and WIPO, which has a mandate to deal with intellectual property standards. The issue, therefore, is to what extent does GATT have the competence to deal with standards in any substantive way?

The final issue is the level of detail that is desirable in an agreement. Most countries believe we should not be trying to harmonize details in GATT, since that is better left to the jurisdiction of WIPO.

The second pile of issues on the negotiating table deals with the question of enforcement. One of the basic issues here concerns how comprehensive a system of enforcement rules should be sought? Some countries have suggested we should only be looking at trade mark counterfeiting and copyright piracy. Others, including Canada and many of the developed countries, want a comprehensive set of enforcement obligations. There is also the question as to of whether a uniform system is needed. When you consider the differences among existing legal systems, particularly between countries that have civil law and countries that have common law, it is an open question as to whether a set of generalized principles can be developed that will be adequate without being inordinately complex. There is also the question of coverage. Some countries argue that while it is fine to look at border enforcement, we should not be looking at internal enforcement since this is not within GATT's jurisdiction. Finally, how detailed a set of enforcement obligations is needed? Can the business community, in fact, operate under a set of principles with any assurance or must there be an extremely detailed set of obligations?

The third pile of issues on the negotiating table deals with the question of institutional arrangements. The fundamental question is how to bring an existing series of international standards and rules within the ambit of the GATT system? GATT does have general principles that can apply to intellectual property. Principles such as national and most-favoured nation (MFN) treatment do have an application, but there is a limitation in terms of their applicability to goods. Furthermore, it is necessary to look at the concept of national treatment in the intellectual property conventions dealing with persons, if we are to develop a total and comprehensive package of obligations. Indeed, one would probably have to extend the scope of protection to services as well; that is, to intellectual property embodied in services. The issue of dispute settlement is also central to the question of institutional arrangements. This is regarded as being a very important issue because many countries want to have the multilateral system considerably strengthened and this will, in and of itself, reduce the necessity for any kind of unilateral action.

How do the three groups of countries differ with respect to all of these issues? In very broad terms, the developed countries want to see a comprehensive and effective agreement in the GATT that satisfactorily deals with standards, enforcement and institutional issues. These countries believe that higher IP standards and enforcement capabilities would result in increased innovation, increased research and development and increased investment. There are differences among developed countries on issues such as the scope of patent protection, first to file (especially as it relates to the United States), compulsory licensing, neighbouring rights, appellations, and a series of copyright issues dealing with, for example, rental rights. While there is not a uniformity of views among developed countries, there is movement toward a common approach to many of these issues. The newly industrialized countries (including Korea, Singapore, Malaysia, Thailand and Mexico) are willing to support a comprehensive agreement and the idea of strengthened intellectual property protection internationally, but want individual exceptions or restrictions for issues that are of importance to them commercially.

Finally, the developing countries present a major problem in terms of the kind of agreement that we will be able to reach. Many of the developing countries feel that GATT should not be dealing with IP, rather they contend it falls within WIPO's province. There are others who argue that the agreement should only relate to counterfeiting and piracy. There is another group who insist that only the trade-related aspects of IP should be included in a GATT Agreement. There are others who want special and differential treatment, such as dual standards that would relate to the economic development of particular countries. Finally, there are proposals for transitional arrangements and requests for significant technical assistance to implement the Agreement. Technical assistance and transitional arrangements are certainly legitimate issues for these countries. That is not to say that the other issues are not, but there is widespread recognition that these two issues will have to be dealt with very quickly.

How has Canada positioned itself among the developed countries? First of all, Canada has done extensive research in developing its positions. A series of interviews were conducted across the country with 110 associations that are affected by intellectual property. Also, Canadian missions abroad were contacted to determine what difficulties Canadian exporters are encountering. The study revealed that there was a broad level of support for Canada taking a position very similar to that of the other developed countries in the Round, but at the same time it was recognized that the Canadian situation was distinct. Further, the study showed that it was felt the Canadian focus should be on the United States, since in the Free Trade Agreement we did not negotiate an intellectual property agreement with the U.S.A. and because many of our concerns relate to issues such as Section 337 and the first-to-invent system in the United States. An interest was also expressed in Canada's having a longer-term perspective in terms of getting the international framework right for regulating intellectual property. Further, the study noted that we should maintain a very strong presence in WIPO, in order to pursue the efforts being made there to achieve harmonization. Finally, there was a perspective that we should try to reach an agreement that covers all of the GATT member countries.

One aspect of the Canadian position that is important to mention is the question of our trade flows. The first issue is who our trading partners are. About 90 per cent of our exports go to the OECD countries: about 70 per cent to the U.S.A., another 10 per cent to the EEC, and another 7 per cent to Japan. These countries do not suffer from inadequate IP systems in general; that is, systems that need to have levels of protection raised, either in standards or in enforcement. Therefore, we do not have a major problem with OECD countries. Second, the composition of our exports is still largely resource-based and, in fact, only about 10 to 15 per cent of Canadian exports have a high IP component to them. Third, Canadian IP-related exports tend to be oriented toward niche markets. On the cultural side, we do not have any Michael Jacksons in Canada, nor and do we have the kind of film industry the others have. Therefore, Canadian exporters do not have as urgent a requirement for IPP as some of the other developed countries.

The area where our trade is growing fastest is with our East Asian partners—in particular, Hong Kong, Taiwan, Singapore, Thailand and South Korea. Our exports in East Asia enjoy rapid rates of growth. Currently, however, they only account for about

4.1 per cent of our total trade and, therefore, if you combine that 4.1 per cent with the 10 to 15 per cent of our exports that are IP-related, there is only a small percentage of risk in our trading interests right now. It is recognized, nevertheless, that we must be vigilant about some strategic Canadian exports, and that we must participate actively in promoting higher standards on a worldwide basis.

Canada has four objectives in the negotiations. First, the discriminatory border practices that we are encountering must be removed—the dominant concern being Section 337 in the United States. Second, we want to see higher standards of protection and enforcement on a worldwide basis. We believe that Canadian standards in general are quite high, and we would like to see others move up to the same level. Third, we do not want to see new trade barriers created, and there is a danger of that. There are very extensive procedures for administrative and customs enforcement at borders. Finally, we very much want to have a consultation and dispute-settlement process within the GATT that will minimize unilateral action. In other words, we want to have higher standards and clearer rules for business that are fairly applied.

What results can be expected from the negotiations at this point? I think the range of possible results extends from no agreement at all (for example, it might be only an agreement to pursue the issue in another forum) to a simple obligation on countries to produce systems of IP that contain adequate standards and appropriate enforcement. That could be a paragraph amending the GATT. Another solution might be finding a remedy to the problems of counterfeiting and piracy, or there might be an agreement that contains a set of principles, but which is not comprehensive in terms of covering all intellectual property issues. You might also have a code that would be an agreement among a limited group of countries rather than the full range of GATT members, in order to permit an agreement with high standards and strong enforcement provisions. Finally, there is the ideal system, which would be a full, comprehensive set of standards, covering all eight areas of IP and with very strong enforcement provisions. This is the objective Canada is working toward. I remain quite optimistic that that is a reasonable expectation. The fact that the political costs can be very concentrated in terms of industries and the range of countries that are affected and the fact that the benefits are so diffused will not help the negotiations. However, this is just one of a series of some fifteen substantive negotiations that are taking place in the GATT, and it may be possible to reach a package deal that includes an adequate system of protecting intellectual property.

To conclude, "it works better if you plug it in." I interpret the "it" as being intellectual property. Intellectual property will work better if you plug it in. The Department of Consumer and Corporate Affairs is trying to do several things to plug intellectual property in. The first relates to domestic policy-making—CCAC is making an effort to modernize all of its intellectual property statutes as quickly as possible. The second relates to public awareness and the fact that the government must make improvements in this area, including more intercourse with the business community. Third, we must have systems that are automated and that are accessible to a range of users. Fourth, intellectual property should be plugged into the mainstream of the international economics system. We must not put this off any longer. The consciousness-raising that has happened regarding the linkage between IP and a range of domestic and trade issues is irreversible. That is in place and has to be dealt with. However, I believe the first step should be a basic agreement within the GATT, thereafter we can refine and polish that agreement.

VII.

Enforcement of Intellectual Property Rights: Adjudication of Private Interests and International Disputes

Enforcement of Intellectual Property Rights: Adjudication of Private Interests and International Disputes

Gordon F. Henderson

Introduction

Canada's economy is heavily dependent on international trade. For this reason, Canada is vitally interested in the international and domestic regimes that regulate trade among nations. Aside from the bilateral and multinational general trade agreements such as the GATT and the FTA, Canada is a party to conventions relating to intellectual property—the Bern and Paris Conventions, the Universal Copyright Convention and, more recently, the Patent Co-operation Treaty that came into force in Canada on January 1, 1990. Canadian domestic laws, though somewhat more complicated by our version of federalism, provide substantive protection and adjudication mechanisms relating to intellectual property rights, owned by Canadians or non-Canadians.

Canada is a net importer of high dollar-added goods protected by intellectual property rights. However, high technology and R&D-intensive products account for a small portion of Canada's export trade. It is estimated to be less than 4 per cent of world trade in these products. Nonetheless, Canada and its corporations suffer substantial losses in revenues and profits arising from commercial piracy and counterfeiting. Previous panels have explored the various issues and the position Canada has taken on those issues at the international level. Nonetheless, it is essential to underline the unique position of Canada: Canada favours more effective intellectual property protection worldwide. In the enforcement of trade-related IPRs, it is Canada's position in the Uruguay Round at GATT that there should be fair, and non-discriminatory, international rules and guidelines to enforce intellectual property rights. However, it is a fact that Canada has a deficit in IP-protected goods and services, and that Canadian domestic law does not reflect as aggressive a position as other countries (the United States, for example) in developing or extending significantly stronger protection for intellectual property rights. Canada seeks a balanced position.

Adjudication of Private Interests and International Disputes Generally

Intellectual property rights embody an economic power that impacts upon balance of payments and foreign exchange. An IP right can constitute a private right, a private barrier to trade. An IP right reflects economic power both in private relationships and relationships between states. An IP right is also an aspect of human rights. Article 27(2) of the Universal Declaration of Human Rights states that "everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author." Like human rights, intellectual property rights have received ringing declarations for their protection. As an issue of economic power, however, IPRs have, from time to time, succumbed to the dictates of national state interests.

Various international agreements relating to intellectual property rights represent an attempt to harmonize the domestic laws of various countries in order to provide the necessary worldwide protection. It is the quality of this interrelationship of international agreements and domestic laws that determines to some degree the quality of adjudication and the protection of IPRs.

International disputes, in the classical meaning of that expression (i.e., disputes between states), arising from conventions, are resolved in the traditional manner: negotiation, arbitration or Hague Court reference. However, the conventions relating to intellectual property do not provide a real, adequate or effective dispute-resolution mechanism. WIPO, established in the 1967 Convention, is an administrative body, not a dispute-resolution body. The Paris Convention did not offer a provision for the settlement of disputes. The Brussels Revision Conference in 1948, however, added a provision to the Bern Convention stating that disputes between two or more countries as to the interpretation or application of the convention, not settled by negotiation, shall be taken to the International Court of Justice in The Hague, unless the countries concerned agree on some other method of settlement. So far as I am aware, no dispute has been submitted to the Court, in spite of the compulsory jurisdiction provision in the Convention. Trade, generally, and human rights have more advanced dispute-resolution methods, at least regionally.

GATT

Canada has been an active participant in GATT since its inception in 1947. Whereas the Bern and Paris Conventions are based on the national treatment of persons, GATT is based on the national treatment of goods. GATT is not directly concerned with intellectual property rights, but it has had an impact on IP issues where they have a affected trade in goods. A 1989 panel upheld a complaint under GATT at the instance of the EEC. The panel held that Section 337 of the United States *Tariff Act* of 1930 discriminated against imported goods that allegedly infringed a U.S.A. privately held IPR. The discrimination was found in both procedure and substance. A complaint by Canada as to Section 337 in 1983 was not successful. However, certain provisions of Canada's Foreign Investment Review Agency (FIRA) were held by a GATT panel to have discriminated against imported goods and, therefore, was inconsistent with Canada's national treatment obligations under GATT Article III.

The Uruguay Round of negotiations hopefully will result in a more streamlined and effective dispute-settlement process and the adoption of a TRIPS agreement.

Free Trade Agreement

The FTA does not address intellectual property rights directly. Article 2004 of the FTA merely states that the parties shall co-operate in the Uruguay Round and other international forums to improve protection of IPRs. However, the national treatment process of GATT has been expressly incorporated into Article 501 of the FTA. It recognizes that counterfeiting of goods distorts trade. Chapter 18 of the FTA sets out several dispute mechanisms.

Two disputes heard by a panel of experts indicate there is a more expeditious disposition of issues under FTA than there is under GATT. The two issues relate to the dispute as to Pacific Coast salmon and herring, and the lobster case in the Maritimes.

International disputes relating to intellectual property rights—disputes between a national person and a foreign person—are increasingly being resolved by arbitration, a private mechanism established by them, or by the traditional adjudicative process within one nation. In this regard, the resolution follows a process not different from that of a domestic dispute.

Foreigner's Rights in Canada: The Impact of International Agreements

Under Canada's constitutional regime, international agreements do not confer upon any person, foreign or Canadian, any rights that may be directly enforced in Canada. The constitutions of some countries contain a mandate for a treaty or international law to be part of the law of the land. In Canada, however, a treaty or international law is not part of Canadian law. The treaty or international law must be enacted as a part of the law of Canada. It must be "implemented" by a statute of a provincial legislature or by parliament, depending on their respective constitutional competence in relation to the subject of the treaty or international law. Ratification of a treaty by the Government of Canada is not enough; ratification amounts simply to a declaration of an intent to enforce the treaty or international law at some appropriate time.

A foreign national must depend on the domestic law of Canada to define and enforce his intellectual property rights. The resolution of disputes as to treaty rights is achieved through diplomatic channels.

For the most part, intellectual property rights are enforced by the mechanisms in federal statutes. Patents, which protect the embodiment of ideas of a functional nature, are governed by the *Patent Act*; copyright, which protects the expression of ideas, is governed by the *Copyright Act*; trade marks, which protect symbols that distinguish goods and services in the marketplace, are regulated by the *Trade Marks Act*. Industrial designs, which in Canada relate to ornamentation applied to an article, are governed by the *Industrial Design Act*. The common law governs trade secrets and supplements the statutory regime for the other intellectual properties, particularly with regard to trade marks and unfair competition.

The policy of these statutes and the courts relating to IPRs of non-Canadians, reflect, in part, the international conventions, modified by Canadian policy. For instance, the basic principle of the Paris Convention, which requires nationals of member countries to be treated as favourably as one's own nationals, is, in substance, embodied in the *Patent Act*.

Canada has recently made an important policy change in its patent law by defining that the person entitled to a patent will be based on the principle of the "first-to-file" rather than the "first-to-invent." This important policy is a fundamental departure from the principle that has long been in effect in Canada. The United States is the only major country that still adheres to the "first-to-invent" principle.

Primarily, however, the policy, stated in Section 64(4) of the *Patent Act*, is "that patents for new inventions are granted not only to encourage inventions but to ensure that new inventions shall so far as possible be worked on a commercial scale in Canada without undue delay." To encourage manufacturing in Canada, the patentee has three years from the date of issuance to manufacture on a commercial scale. After the third year, the failure to manufacture or, alternatively, meeting demand by importation subjects him to the risk of compulsory licensing, after a hearing before the Commissioner of Patents. The compulsory licence is generally non-exclusive, but it could be sole or exclusive, although, so far as I am aware, only one sole licence has been issued. The royalty payable to the patentee is fixed by the Commissioner. If the Canadian manufacturer has extraordinary expenses, there could be an exclusive or sole licence. To avoid this possibility, United States patentees have sometimes adopted a practice of dedicating the patent to the public.

Another significant policy limiting the exclusive right under a patent relates to food. A patent on a food is subject to compulsory licensing immediately upon the granting of a patent; there is, thus, no three-year waiting period. Since this policy applies to both Canadians and non-Canadians, it does not contravene the Paris Convention. A licensee must be prepared to manufacture the food in Canada. Again, the Commissioner fixes the royalty.

Canadian policy as to pharmaceuticals is of particular significance. It has led to considerable controversy both in and outside of Canada. The compulsory licensee is given the right to import the medicine. The Commissioner has fixed an arbitrary rate of royalty at 4 per cent of the selling price of the medicine in dosage form. Attempts to have it condemned as unconstitutional under the *Charter of Rights and Freedoms* have been unsuccessful.

A statute enacted in November 1987 reflects an attempt to bring patent protection for pharmaceuticals closer to the international regime. The objective of this law was to limit the right to obtain compulsory licences for Canadian pharmaceutical patents and to stimulate investment, research and employment in the pharmaceutical industry in Canada. The exclusivity periods under Bill C-22 follow.

- Where first Notice of Compliance ("NOC")[1] for the medicine is issued after June 27, 1986, a compulsory licensee may not:
    - manufacture the medicine for sale in Canada for seven years from date of first NOC;
    - import the medicine for sale in Canada for ten years from date of first NOC;
    - export sales are allowed.
- If a medicine qualifies as an invention, invented and developed in Canada:
    - no licences for importation will be allowed;
    - licensee will not be allowed to export;
    - licensee will be allowed to manufacture seven years after the issue of the first NOC for the medicine, *if* at that time the patentee is not manufacturing the medicine in Canada.

As to trade marks, the basic protection, particularly as an aspect of unfair competition, is provided under common law. The *Trade Marks Act* establishes a regime of registration, which obtains throughout Canada, of marks that are distinctive of wares or services in Canada. The registration is for fifteen years, renewable every fifteen years in perpetuity. There is a system of licensing by way of registered user, in which the registration is almost automatic if the parties are related. If they are not related, then there must be a control mechanism defined by the owner of the mark so that the mark achieves a particular standard.

With respect to copyright, Canadian law follows basically the law of the United Kingdom, with some amendments. It generally protects literary, musical, dramatic, artistic and architectural works. It precludes copying. Copyright includes a bundle of rights; two of the more important are mechanical rights and public performances in musical works. It follows the Bern Convention, and provides protection for the life of the author plus fifty years. The 1988 amendments to the *Copyright Act* also brought the Canadian law in step with other jurisdictions by extending copyright protection to computer software. It may also be noted that under the Free Trade Agreement, Canada agreed to amend its copyright law relating to retransmission of television programs. Since the early problems relating to cable in the 1970s, the United States has complained that Canadian stations are illegally retransmitting copyright work embodied in television signals originating in the United States. This provision of the FTA now characterizes such unauthorized retransmission as copyright infringement, thus requiring Canadian cable stations to obtain the right to use such signals from the copyright owner.

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[1] The approval granted by Health & Welfare to sell the medicine in Canada.

In Canada, we have a sophisticated system whereby persons engaged in the public performance of musical works obtain a statutory right to perform the works of performing rights societies on tendering or paying a fee that is fixed by the Copyright Board.

As to industrial design, the *Act* confers a five-year protection right, which is renewable for another five years. The statute is clearly archaic. The Court has said this repeatedly since 1926.

Trade secret has many definitions, and one definition cannot claim superiority over another. In essence, the protection accorded is against unauthorized or illegitimate disclosure of information. An increasing number of companies maintain their technical knowledge as trade secrets because technology moves faster than the whole patent process, including patentability, protection and adjudication.

Generally, the law of trade secrets comes within provincial jurisdiction and is enforced as part of common law. A recent decision of the Supreme Court of Canada has held that our criminal law, as now worded, does not protect against commercially valuable information.

Adjudication Systems Under Canadian Law in Disputes with Foreign Elements

General Conditions

In Canadian law, one finds two fundamental systems of adjudication: a public system and a private system. The public system takes two forms—administrative and judicial—and these forms are largely complementary rather than parallel. The private system is one that the parties themselves may, by agreement, establish for the resolution of their dispute. This is often called "alternative dispute resolution."

In terms of administrative adjudication with respect to patents, the compulsory licensing referred to earlier is intended as a mainstay in Canadian law. Apart from the pharmaceutical patents, in my opinion, it has not fulfilled its purpose.

The owner of a statutory right flowing from a federal statute enjoys a choice of judicial jurisdictions: as to Patents—Trade Marks—Copyright—Industrial Designs. He may sue for infringement of his right either in the Federal Court of Canada or in the Supreme Court of a province. The scope of protection will be for all of Canada in the Federal Court system and limited to a provincial territory in the provincial system. Infringement of a patent or the expunging of a trade mark registration is within the exclusive jurisdiction of the Federal Court.

There are, however, several administrative tribunals that have specifically defined jurisdiction within the system. I have already mentioned that the Commissioner of Patents has jurisdiction over compulsory licences for abuse of patents, compulsory licences for foods and medicines, and government use of patents. Appeals from his decisions are heard in the Federal Court system. As to trade marks, an Opposition Board deals with oppositions. Appeals are in the Federal Court system. A Copyright Board deals with the rights of users of copyright in relation to collectives. I believe that consideration could be given to streamlining aspects of the administrative adjudication system in Canada.

Canada's court system is essentially unitary, with the courts of the provinces administering federal law as well as the law of the provinces. The Federal Court of Canada administers only a limited number of laws enacted by the Parliament of Canada.

The Remedies

The remedies under Canadian law include the traditional civil remedies of injunction, both permanent and interlocutory, and damages. In certain instances, the so-called Anton Pillar order, which gives a mandate to seize goods and records, is available. As a protective order, the Mareva injunction, may be granted by the Court, where the goods are likely to be removed from Canada.

Pursuant to the *Trade Marks Act* and the *Copyright Act*, the court may issue an order declaring the goods are "prohibited goods," where there is final judgment of a court of competent jurisdiction. This order may be filed with Revenue Canada, Customs for proper execution. In *Rolex Watch* vs. *Balshin*, rendered March 13, 1990, the Federal Court held that Section 52(4) must be read with Customs Tariff, Section 114 and Schedule 7, Code 9967, of the Customs Tariff. The remedy is not available where the judgment of the Court is given by consent or by way of default judgment.

A unique remedy is found in Section 32 (originally Section 29) of the *Competition Act*. This provision confers authority on the court of a province or the Federal Court, on application of the Attorney General of Canada, to declare the invalidity of a patent or trade mark; to order the granting of a licence; or to decree that a trade mark be expunged or amended, and to issue other similar orders in the event of the use of patents or trade marks in an anti-competitive manner. The Attorney General of Canada has seldom used this remedy.

The so-called "Gray Goods" doctrine presents an interesting situation under Canadian law. It is a principle of Canadian law that if goods are sold in a non-Canadian territory and the intellectual property right is owned by the vendor in the country of sale, and in Canada, there is an implied licence to the purchaser of the goods under the common law to deal with those goods in any country. As a result, multinationals tend to put their IPRs in different countries under the name of different subsidiaries, or to exact, at the time of sale, a covenant from the purchaser limiting the right of use to the country of sale and requiring the purchaser to exact the same covenant on resale. This situation has given rise to a great deal of litigation with respect to trade marks. The owner of the mark must be careful to ensure that the trade mark is distinguishing the goods or the registered owner. Two cases went to the Supreme Court of Canada where the registered owner was unable to enforce his rights against an importer because the advertising indicated that the goods were those of the non-Canadian parent company or a non-Canadian vendor.

Recently, the Supreme Court of Canada approved a limited form of protection to the Canadian owner of an IP against the vendor of Gray Goods in Canada. Where the importer is not an authorized distributor of the goods, he must state this fact and the manufacturer's warranty, therefore, would not be applicable.

There is also a specific provision in the *Trade Marks Act* that must be considered as to related companies. With respect to pharmaceuticals, a sale by a related company is deemed to be a sale by all related companies.

The Effectiveness and Efficiency of the Public Adjudicative Process: Alternative Process

The public adjudicative process has been subjected to increasing criticism by provincial governments. The criticism and dissatisfaction of the Canadian industry, however, relate to the Canadian intellectual property system in general and to the litigation process in particular. Two studies conducted by CCAC in 1990 report that smaller firms, especially those in the high-technology field, expressed dissatisfaction with the Canadian IP system. They believe that the current IP system mainly protects larger firms, and offers insufficient protection to smaller companies that cannot afford the costs of registering and enforcing their rights. It is interesting, however, to note that this study reports that "companies stating that new IP legislation is needed were found only among the top R&D performers and high-technology categories. Firms from the high-technology group (14 per cent of respondents) were also more inclined to believe that Canadian IPRs discourage the amount of R&D they conduct in Canada."

With regard to litigation involving intellectual property rights, the study shows that the present adjudicative system is considered by many Canadian enterprises to be seriously flawed and inefficient. The responses of the companies surveyed by CCAC show that companies involved in IP litigation were "unhappy with their court experience." The cost of litigation was one factor contributing to this situation. The Report of the Science Council of Canada, *Innovation and Intellectual Rights in Canada* (March 1990) confirms and summarizes the situation as follows:

> "IP litigation is relatively common among top R&D performers. Forty-five per cent of the firms in this category reported that they had been involved in a court case relating to IPRs during the previous three years, compared with 17 per cent for the survey as a whole. Moreover, of the 49 firms that had not been involved in a court case, 26 firms (53 per cent) had considered

> launching, or had been threatened with, legal action regarding IPRs.
>
> For 59 per cent of the firms that had been in a court case concerning IPRs, the most recent case related to patents. Total costs of litigation for the 35 firms which reported their expenses were $13 million, an average of $370,000 per case."

Some provincial governments have been more pointed in their criticism, and they have expressed concern about the Federal Court jurisdiction. In fact, the concern related to the suitability of the judiciary, as presently constituted, to resolve intellectual property disputes. One problem is that neither the courts of the provinces nor the Federal Court are composed of judges with any significant experience in IP practice or adequate background in IPRs. Results, analyses and reasons for judgments are uneven. One finds that judges apply different standards with respect to invention. The situation is exacerbated by the fact that the Supreme Court of Canada is preoccupied with Charter and criminal cases, and does not grant leave to appeal in intellectual property cases except in very unusual circumstances.

A number of solutions can be explored. One can consider the removal of the jurisdiction of the Commissioner of Patents under the *Patent Act*, and constitute him purely as an administrative officer. The quasi-judicial jurisdiction may be conferred on a tribunal of experts. Similarly, the judicial function may be conferred on a special division of the Federal Court or on a single, special federal court. However, there may be problems with staffing such a tribunal or court from the limited number of specialists in the profession.

Another solution is the private system of dispute resolution: arbitration. The technique of arbitration as a dispute-resolution mechanism is becoming increasingly significant in intellectual property disputes. It is especially the case in a dispute between foreign nationals and Canadian nationals. Neither party wishes to accept the jurisdiction of the other. However, there are inherent advantages to the arbitration process over that of the traditional, judicial process. The advantage of expertise, confidentiality, speed and reasonable cost are present. Now that Canada has adhered to the New York Convention on the Enforcement of Arbitral Awards, the enforcement is no longer a concern. The Arbitrators' Institute of Canada and the mechanisms for arbitration under the *Board of*

Trade Act, R.S.C. 1985, C--B--6, may be considered as a framework for arbitration.

Consumer and Corporate Affairs Canada is undertaking a study into the effectiveness of the present court system and process, in relation to the enforcement of intellectual property rights. This study flows from the study finding dissatisfaction with the present system.

The Territorial Scope of Intellectual Property Rights

Hans Smit

The Territorial Scope of Intellectual Property Rights

Intellectual property rights are normally created pursuant to national laws.[1] In many instances, they come into existence only by governmental grant, or governmental recognition following an application procedure.[2]

In principle, the geographical scope of protection accorded to IPRs is limited to the confines of the state by virtue of whose laws they exist.

The extent to which they will be recognized outside of the territory of that state depends on the law of the state in which their recognition is sought. Normally, a state does not recognize foreign intellectual property rights except to the extent they deserve protection under either local, as distinguished from foreign, law or under international agreements. However, the Universal Copyright Convention is a good example of the exceptional extraterritorial protection granted to copyright: It entitles the copyright owner who first published the work in, or who is a national of, a Convention state to copyright protection in any other Convention State.[3]

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[1] See generally, Ladas, Patents, Trademarks, and Related Rights, c.2 (1975).

[2] Typically, patents are obtained only by an affirmative grant by a governmental authority. Trade marks may be obtained by first use or by registration. Copyrights are normally obtained by first publication. Model and design rights pursuant to special laws are normally obtained by registration. Trade secrets are protected by the law of contract and the law of torts, which generally prohibits deriving benefits from what is known to be a breach of contract. See generally Smith & Herzog, "The Law of the European Economic Community," 85.69; Ladas, op. cit.

Apart from international agreements, however, the owner of an intellectual property right in one state normally cannot assert its rights against a third party in another state unless it has obtained an intellectual property right in the latter state. International agreements may facilitate obtaining intellectual property rights in more than one state, but generally stop short of providing for enforcement of foreign intellectual or industrial property rights.[4]

Foreign Protection of Intellectual and Industrial Property Rights

The general principle of the territoriality of IPRs is subject to some exceptions, however. A state may, under its conflict of laws rules, give recognition and effect to a foreign intellectual property right even if the constituent elements creating the right did not occur within that state. For example, if an intellectual property right was infringed in one state and suit is brought against the infringer in another state, the latter may look to the law of the state where the infringement took place in determining the infringer's liability.[5] Similarly, when a contract has been made with regard to an intellectual property right and rights or obligations arising under such a contract are sought to be enforced in a state other than the state of origin of the intellectual property right, the foreign state may, under its conflict of laws rules, give consequence to the IPR created under the law of a foreign state.[6]

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[3] See Arpad Bogsch, The Law of Copyright under The Universal Convention, Third revised edition, (R.R. Bowker Co., New York, 1968).

[4] International conventions, such as the Paris Convention of 1883, as amended, and the Madrid Arrangement facilitate obtaining local property rights, give a limited right of priority and forbid discrimination. They do not, however, purport to grant local protection to foreign rights. See generally Ladas, op. cit. supra 1911-2015, for the texts of these Conventions. *But cf.* the European Patent Convention of Munich, 1973, which creates the possibility of obtaining a European patent in all countries that have adhered to the Convention.

[5] Under the well-known principle that the lex loci delicti applies.

These, however, remain the exceptional cases. Indeed, it is the principle of territoriality that has given impetus to international agreements for the purpose of enabling the owner of an intellectual property right to obtain protection for such right in other states.[7]

Domestic Protection Against Infringement upon Intellectual and Industrial Property Rights Abroad

Since it is normally difficult to obtain protection abroad of intellectual and industrial property rights existing under national law, the question naturally arises: to what extent can such rights be protected at home? An obvious way of providing protection at home against use of intellectual or industrial property rights abroad is to regulate the importation of goods embodying such rights in the home market. A good example is provided by the provisions of the Copyright Act that prohibits the importation of so-called pirated works.[8]

It is also possible, however, for courts to provide this form of protection without statutory authorization. The recent decision in BSI v. Remington Rand[9] is illustrative. In this case, Remington, a United States corporation, had licensed its Dutch subsidiary to employ its secret know-how for the manufacture of typewriters. When the Dutch subsidiary went bankrupt, the trustee sold the know-how to BSI without the consent of the licensor, even though the licensing agreement provided for its termination in the event

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6. For an unusual case in which a French court granted more extensive protection to the rights of a movie director than the director had under the law of the country in which his right originated, see Huston v. La Cinq, Paris Court of Appeals, June 27, 1988, discussed in Ginsberg, "Colors in Conflict: Moral Rights and the Foreign Exploitation of Colorized U.S. Motion Pictures," (36 *Journal of Copyright Society of the U.S.A.*, 81, 1988).

7. See authorities cited note 4 supra.

8. 17 U.S.C., 601 (1977).

9. 830 F. 2nd 1260 (3rd Cir. 1987).

of the licensee's bankruptcy. Remington sued BSI and the trustee of the bankrupt licensee for misappropriation of its know-how. When the defendants interposed as a defense that know-how was not a property right, Remington asserted its copyright in the drawings in which the know-how was incorporated. The United States District Court for the District of New Jersey awarded Remington substantial damages for the misappropriation of its know-how and copyright by the defendants, and imposed a constructive trust on all typewriters and their proceeds produced with the aid of Remington's know-how and copyright. The practical consequence of the imposition of this trust was to give Remington an equitable title in all typewriters sold in the United States, which is BSI's principal market.

Of course, whether this trust will be recognized in countries other than the United States depends on whether foreign courts will accord it recognition.[10] BSI has contended that Dutch courts would not recognize the constructive trust because it is a legal institution unknown under Dutch law. However, the mere circumstance that Dutch law does not have the institution of a constructive trust does not preclude a Dutch court from recognizing its existence under foreign law. The pertinent question is whether recognition of the trust would create consequences that are unacceptable in the Dutch legal order. Since a constructive trust is a form of in rem right of security, its recognition by Dutch courts would appear appropriate. Dutch courts would have to determine the ranking of this right among other security interests that may have been created in the same property under Dutch law, but there is no reason why they could not do so. Dutch courts have done this in regard to judicially created Dutch in rem fiduciary rights and could quite appropriately decide by analogy to apply those rules to constructive trusts.[11] This would appear particularly appropriate because countries that practice civil law have indicated their preparedness to recognize trusts created under systems that practice common law by voting for the adoption of The Hague Convention of 1985 on the Recognition of Trusts.[12] While this Convention applies only to express trusts created by persons, there is no reason why recognition could not also be given to foreign trusts imposed by law.[13]

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[10] The best case for recognition is presented when the effectiveness of a constructive trust imposed on goods that are physically present in the foreign country is in issue. However, since security rights created by parties abroad may be recognized by foreign courts when the foreign legal order is not offended by such recognition, nothing would appear to preclude foreign courts from recognizing foreign security rights imposed by operation of foreign law.

[11] See generally 3 Asser, Zakenrecht, 11th edition (1986), pp. 178-80.

In any event, the imposition of a constructive trust on goods manufactured abroad in breach of the intellectual or industrial property rights of United States corporations provides effective protection to the owner of such rights whenever the U.S.A. is the ultimate market for the goods produced.[14]

A United States court's equitable jurisdiction over a foreign defendant may also enable it to formulate other measures to protect intellectual and industrial property rights abroad. The court may enjoin the defendant from using the rights abroad on penalty of a fine to be forfeited to the plaintiff. This is an indirect form of compulsory licensing at the behest of the owner of the rights. Or the court may enjoin the use of the right completely, thus imposing on the defendant the burden of making an arrangement with the plaintiff to permit its use. Indeed, the court may impose on the defendant any obligation it deems appropriate to protect the plaintiff's rights, as long as the burden imposed is not inequitable.[15]

Another method for obtaining protection at home against misappropriation of intellectual or industrial property rights abroad is available in arbitration. International arbitrators are more likely to have less regard for territorial limitations on intellectual and industrial property rights when a party has contractually bound itself to respect those rights. For example, if a United States company has licensed its know-how and other intellectual or industrial property rights under a contract providing for arbitration and the application of United States law, international arbitrators may well hold the licensee to its bargain, even though the licensor has not obtained a grant of intellectual or industrial property rights in the foreign country in which the licensee conducts its operations. In such a situation, the contract takes the place of granting national intellectual or industrial property rights.

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[12] Convention on the Law Applicable to Trusts and on Their Recognition, Final Act, XVth Session, Hague Conference on Private International Law. On this Convention, see Gaillard & Trautman, Trusts in Non-Trust Countries; Conflict of Laws and the Hague Convention on Trusts, (*35 America Journal of Competition Law*, 1987) p. 307.

[13] Article 3 of the Convention. See also Gaillard & Trautman, note 12 supra, at pp. 317-18.

[14] Of course, United States courts will have to consider to what extent their measures of protection should be subordinated to other security rights created under foreign or domestic law.

[15] In the exercise of its equitable jurisdiction, the courts must balance the equities.

Conclusions

Intellectual and industrial property rights are, in principle, territorially limited. However, the protection of trade secrets that are not covered by patents is not limited territorially. Since it depends on a combination of contract and tort law, which in the relevant respects is similar in most developed countries, trade secrets enjoy a greater measure of international protection than do most other intellectual and industrial property rights. This may explain why companies such as Coca Cola and IBM may, in appropriate cases, prefer to keep their production methods secret rather than to patent them.

Since intellectual and industrial property rights are territorially limited, it may be difficult to secure their protection abroad unless parallel rights are obtained under foreign laws. Nevertheless, protection may be obtained abroad, even in the absence of parallel foreign rights, if, under applicable foreign rules of conflict of laws, protection is accorded under domestic law.

Notwithstanding the limited protection available abroad, domestic courts may be able to provide effective protection against what they judge to be improper use of intellectual or industrial property rights protected under United States law by the exercise of their equitable jurisdiction over foreign defendants who are subject to their adjudicatory power. In the exercise of this power, they may direct defendants abroad, who are subject to their jurisdiction, to discontinue practices found to be improper and direct the disposition of the goods that have been produced with the aid of improperly used intellectual and industrial property rights.

Finally, arbitration should be considered as an alternate and effective means of obtaining protection against the improper use of intellectual and industrial property rights abroad.

Of course, it is always desirable to provide for more effective protection of intellectual and industrial property rights abroad. Whether such protection can be obtained does not only depend on the facilitation of obtaining such rights in other countries. It also depends on the means available for enforcing such rights abroad. Whenever both are not secured, the owners of intellectual and industrial rights will have to look primarily to domestic courts for protection.

Enforcement of Intellectual Property Rights: Adjudication of International Disputes

Joseph A. Greenwald

Introduction

For countries that are interested in the protection of IPRs, one of the major issues is the availability of an effective dispute-settlement mechanism. At present, there is no such provision under the WIPO system. This gap is one of the reasons why the U.S.A. took the lead in putting IPRs on the agenda of the GATT.

Stimulated perhaps by the United States initiative in GATT, WIPO recently circulated a questionnaire regarding the issues arising in connection with a proposed treaty on the settlement of disputes. The questions were related to a paper prepared by the WIPO Secretariat for the first session of a Committee of Experts on the Settlement of Intellectual Property Disputes Between States, held in Geneva February 19-23, 1990.

The U.S.A. prefaced its response to the WIPO inquiry by saying that the value of the proposed treaty is somewhat questionable, since dispute settlement regarding international treaty obligations is not generally effective when there is not some means to sanction a party for failure to correct inconsistent practices. It also referred to the availability of dispute settlement and arbitration under the good offices of the International Court of Justice and for the Pacific Settlement of International Disputes, under the Hague Convention.

The availability of sanctions is one of the matters that led the United States and other like-minded countries to take up IPR protection in the GATT. At the moment, the efforts of these countries are concentrated on the Uruguay Round negotiations scheduled to conclude at the end of this year. Therefore, this paper will be focused on the GATT negotiations—on dispute settlement and TRIPS.

GATT Dispute Settlement

Status of the Current Negotiations

Improvement in the GATT dispute-settlement process has been a priority for the United States in its efforts to strengthen the GATT through the Uruguay Round of negotiations. As a result of high-level meetings in December 1988 (mid-term review) and April 1989, a decision was adopted for the tentative application of certain rules and procedures. In this decision, the dispute-settlement system was described as "a central element in providing security and predictability . . ." to the General Agreement. The Contracting Parties recognized that it ". . . serves to preserve the rights and obligations . . . and to clarify the existing provisions of the General Agreement." It was agreed to monitor the application of the improvements (applied on a trial basis from May 1, 1989) and to continue negotiations for further strengthening of the system. The details of the improved rules and procedures can be found in GATT Document L/6489, April 13, 1989. They deal with matters like notification of disputes, consultations, good offices, conciliation, mediation, arbitration, and dispute-panel procedures.

Attitudes Toward the GATT Record and Evolution of the System

Because the GATT dispute-settlement procedure did not always work well in the past, with some poor panel reports and long delays in the process, it acquired a bad reputation with governments and the business community. There were also differences among governments about the legal nature of the GATT and dispute settlement. The lack of effectiveness and efficiency of dispute-settlement became part of the case that the GATT had deteriorated and needed strengthening. This criticism does not take account of improvements in the dispute-settlement process that have taken place in recent years without formal changes in the rules and procedures. There has grown up a body of practice and precedent that has improved the system substantially. Governments have not been formally bound in most cases, but they have recognized their own interest in having the system work better. And the informal approach has avoided delicate issues of sovereignty. Some examples of the recent evolution of the process will demonstrate the point.

On the question of a complainant's right to have a panel established, the informal rule is that if a reasonable prima facie case has been made, a panel will be set up with standard terms of reference. Contracting parties realize that they are likely to be asking for a panel, so they do not deny the right to others. There may be some delays and rhetoric in GATT Council meetings for political reasons, but in the end the request has generally been granted. The composition of the panels issue has been pretty well taken care of. A roster of non-governmental experts has been established and the selection process no longer seems to be a problem. The elapsed time between the appointment of a panel and the submission of its report has been an issue in the past. While some time may be wasted on manoeuvres prior to agreement on a panel and its terms of reference, the panels themselves have adhered to a six-months or less timetable for issuance of the panel report.

A more vexed issue has been the acceptance of panel reports by the contracting parties. Various formulas (e.g., consensus minus two) have been considered. But the reality is that there is great pressure on parties to the dispute not to block acceptance of the report. The recent U.S.A. Section 337 report is a good case in point. Again, without dealing with the sovereignty issue, a practice has grown up of accepting panel reports, if they are soundly based and well argued in GATT terms.

Implementation of the findings and recommendations of the panel is the final example. This issue is most difficult for countries like the United States, which have separation of powers. It has taken considerable time in some cases, but the practice of compliance is growing. Even in some sensitive cases parties have accepted findings against them, albeit with a delay in final implementation and putting the action into a politically acceptable negotiating context.

Further Improvements

Despite the progress outlined above, there are still improvements to be made in the system. If formal agreement can be reached on matters like acceptance and implementation of panel reports, it obviously will be preferable to the current reliance on practice and pressure. But it should be recognized that the operation of the system is greatly improved and is an asset to the proper functioning of the GATT.

As the dispute settlement negotiators see it, the remaining issues in the Uruguay Round are:

- how to improve the quality of panel reports (which involves panelist selection and appellate review); and
- how to ensure that panel recommendations are implemented (which involves adoption of panel findings and monitoring of compliance).

Various options are being considered to deal with these issues, but specific proposals have not yet been put forward at Geneva.

Aside from the issues involving sovereignty (like the adoption and implementation of panel findings and recommendations), the most serious outstanding issue may be appellate review. It is not clear how appellate review can be handled in the GATT context. Short of a legal appeal structure, there may be a case for using the U.S.A.-Canada FTA formula of giving an interim report to the parties for their comment before the final report is formulated. In GATT, a party to the dispute may comment on the panel report and the panel may answer the questions raised. Finding solutions for these and other remaining issues will further strengthen the GATT dispute-settlement process.

Professor John Jackson has suggested,[1] as a further reform, that:

> "At some time in the future (it cannot happen soon), the participants in the international multilateral trade system might consider an approach to disputes and rule application that allows some modified means of direct access to procedures by individuals and private firms, ..."

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[1] *Restructuring the GATT System.* (New York, Council on Foreign Relations Press, 1990), pp. 76-77.

Professor Jackson's caution about timing is well taken. The present GATT dispute-settlement mechanism has to be improved substantially, refined and be accepted more generally by governments before consideration can be given to opening it to individuals and companies. There is the additional risk that the opening of dispute settlement to individuals and companies could lead to pressures for direct access to other aspects of the GATT, and that would be much more dangerous to the integrity and operation of the system.

Purpose of the GATT System

Even in its less-than-perfect state, one of the great attractions for governments of the GATT (aside from maintaining the open trading system) is that it provides a forum for dealing with trade frictions. Dispute panels can help governments resolve their differences. The increase in bilateral arrangements for dispute resolution demonstrates the importance of the technique. As long as the GATT rules are incorporated by reference in bilateral agreements (as in the U.S.A.-Canada FTA), the role of the GATT will not be undermined.

Another reason to have dispute settlement in the GATT is to build up a set of cases to help fill in the interstices of the GATT rules. Like a constitution, GATT has broad principles that must be interpreted and applied to particular cases. Dispute settlement contributes to this process.

TRIPS and Dispute Settlement

The Code Approach

A January 1990 version of a United States draft of a code on TRIPS contains Article XVII—"Consultation, Conciliation, and Dispute Settlement." This draft article, like similar provisions in the Tokyo Round codes, follows the language of GATT Articles XXII and XXIII—"Consultation" and "Nullification or Impairment."

As was reflected in the United States comment on the proposed WIPO treaty, the key is the sanctions that can be applied if a party fails to observe the obligations of the code. In the January draft, the TRIPS Committee to be set up under the code would be able to authorize a party to suspend concessions given under Article II of the GATT (schedule of tariff concessions) with respect to the party that has not accepted the Committee's recommendations. The party found in violation would also waive its rights with respect to the withdrawal of authorized concessions, under Article XXIII of the GATT.

Sanctions Provisions in Existing Codes

This withdrawal or retaliation proposal differs from the provisions in existing Tokyo Round codes.

The Standards Code (Agreement on Technical Barriers to Trade) permits only the suspension of the obligations "*under this Agreement*" (underscoring added) "to restore mutual economic advantage and balance of rights and obligations." The Antidumping Code (Agreement on Implementation of Article VI of the GATT) provides for conciliation and establishment of a dispute panel, but appears to be silent on the question of sanctions.

The Subsidies and Countervailing Duties Code (Agreement on Interpretation and Application of Articles VI, XVI and XXIII of the GATT), on the other hand, goes furthest in giving the Committee power to "authorize appropriate countermeasures (including withdrawal of GATT concessions or obligations) taking into account the nature and degree of the adverse effect found to exist."

In the absence of cases under the "countermeasures" provision of the countervailing duty code, the question of application of GATT sanctions authorized by a code remains open. Presumably, if a contracting party accepted the TRIPS code and waived its rights under Article XXIII of the GATT, it might be difficult to complain later about retaliation as nullification or impairment of its GATT rights.

The Amendment Approach and Cross-Retaliation

The EEC has tabled a TRIPS proposal in the form of a new GATT article plus a substantive annex. This approach may resolve the question of cross-retaliation between a code and the GATT with respect to parties that accept the new article and the annex, but raises the more serious problem of the requirement of a two-thirds vote (Article XXX) to amend the GATT. The EEC annex does not include a separate dispute-settlement process; it commits the parties to use the rules and procedures of the GATT without having recourse to unilateral measures (directed at the United States application of Section 301?).

The real issue is likely to be whether a large number of countries, not now affording adequate IP protection, will sign a code or accept a new article and annex. If there is an effort to apply sanctions against a party that has not agreed, retaliation under these circumstances could be subject to challenge under GATT Article XXIII, as Brazil has done in the case of the U.S.A. Section 301 action against the lack of adequate Brazilian protection for pharmaceuticals.

Professor Jackson has made a sensible and necessary proposal in the last chapter of *Restructuring the GATT System* (pp. 97-98). He has argued for a centralized panel procedure and dispute-panel process. As described above, there has been a proliferation of separate dispute-settlement provisions in the GATT codes and the situation cries out for rationalization and consolidation.

With respect to one of the key questions—cross-retaliation—Jackson flags the issue (p. 98):

> "One potentially explosive issue is whether the WTO (World Trade Organization) procedure would explicitly allow retaliation through actions involving a different type of trade than that which was involved in the infraction. For example, would the charter provide an opportunity for product trade measures in response to breaches of service or intellectual property standards? Or vice versa?"

VIII.

Toward a Canadian Policy Framework

Rapporteur's Remarks: Promoting Economic Growth

Richard Lipsey

There was such an abundance of information, ideas and suggestions in this conference that any rapporteur would be daunted by his task. To further complicate matters, there were two rapporteurs at the conference and, although we have had only a few minutes to consult, I believe that Morris Rosenberg and I have reached a sensible division of labour in terms of the perspectives that we will each try to give to our comments.

I will classify most of what was said at this meeting under three main headings, which I call the Ferchat, the Ostry and the Rosenberg messages.

The Ferchat Message

Robert Ferchat spoke eloquently about the Alice-in-Wonderland world in which we now live. The trend to globalization is prevalent; you have only to locate some local market, or activity, to find a likely candidate for the next bout of globalization. This was a theme that was echoed by all of the speakers in the first panel: Ambassador Bunroku Yoshino, Geraldine Kenney-Wallace, Sylvia Ostry and Geza Feketekuty.

Not long ago, economists divided goods into tradeables and non-tradeables, the latter not entering into international trade because of high transportation costs or their perishability. Today, few non-tradeable goods exist, and even non-transportable, local services are being traded by bringing tourists to the sources of these local services. Futures markets and foreign exchange markets are being computerized (against the opposition of many brokers, who will be automated out of business). In fact, the importance of speed is such that traders worry about the competitive disadvantage of being further away from a central terminal than by more than a few milliseconds so that, when two traders simultaneously push the "buy that offer" button, differences in the time taken for the signals (travelling close to the speed of light) to reach the central processor can be critical. Investment flows, and their accompanying financial services, are being globalized as borrowers are able to access lenders almost anywhere in the world, and this makes the concept of local capital markets less and less applicable. Information is being globalized with computer link-ups, fax machines and a host of other innovations that make information from everywhere in the world available.

I like to compare all of these changes, which seem like Alice in Wonderland to us but which will seem commonplace to our children, with the events of 175 years ago. On January 8, 1815, the British general, Sir Edward Pakenham, lost the battle of New Orleans (and his life) three days before the fast Frigate arrived at his headquarters carrying the news of the Treaty of Ghent that had ended the war between the U.S.A. and the U.K. and had been signed on 24 December 1814!

As Murray Smith pointed out, regionalized markets are shrinking in number very quickly. Goods producers, financial firms and workers all find themselves open to competition from almost anywhere in the world. It is little wonder then that agents are shielding themselves in any way that they can. In spite of the growth of non-tariff barriers to trade, however, an index of world competition would show more effective, international competition in almost all sectors today than there was 40 years ago.

Governments need to rethink their economic policies and the institutions that back these up. The types of competition policies, patent regimes, natural monopoly concepts and foreign ownership restrictions that were appropriate two decades ago are no longer appropriate, and can easily work to a country's disadvantage. As many conference speakers told us, the IPP regime that served the world well in the 19th century is now inadequate. It needs to be reworked in the new context of a globalized world, and new institutions must be created to serve that world.

The professional economists at the conference told us that theoretical economics has little to say about the effect of alternative IPRs on such simple things as the volume of R&D. It follows that it has even less to say about such complex matters as the effect of IPRs on overall economic growth, or on economic welfare, judged either from one country's point of view, or globally. In fact, theoretical economics offers little guidance on the relative advantages of different means of protecting IP, nor is it able to tell us what their consequences will be.

Those who are involved with IP may well ask, "Does it matter?" The answer is "yes," if for no other reason than it is the universities that train the next generation of governmental regulators and policy-makers. The economic models that university students learn serve to hone their intuitions, by influencing the ways in which they see problems and the ways in which it seems natural to them to structure solutions. Currently, economists still teach their students a model of the economy in which production possibilities are given by a well-defined, finite set of products, all of which are currently being produced. If they want to study product selection, the usual specification is of a set of well-defined products on the blue-print shelf from which firms select (at no cost) a sub-set for production. This, is surely, not the world we know, a world in which product development, R&D, and consumer demand evolve in response to costly efforts and under uncertain conditions. No wonder conventional theory has so little to offer of use in analyzing the IP scene.[1]

In contrast with not having a clear message from theoretical economists, practitioners seem to have little doubt of the overall value of the IP regime. Geza Feketekuty spoke of the importance placed on improving IPRs by some of the principal United States companies. These companies organized themselves into a lobbying group in the early 1980s and allied themselves with firms of like mind in Japan and in Europe, and they had a significant impact on raising IP issues to the forefront of discussions in the pre-Uruguay Round. Carlos Braga, however, warned us that the system looks very different from the perspective of advanced and less-developed countries. Both points of view must be put into the pot of any final brew that evaluates alternative IP regimes.

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[1] I hasten to add that economists are moving quickly, to repair some of the more glaring deficiencies. However, they are still a long way from having a satisfactory theory in which the problems that typically arise in the analysis of intellectual property can even be conceptually handled, let alone quantified.

Even though pure economic theory cannot provide us with a clear answer, Professor Maskus told us that economic analysis can be highly useful in assessing any IPR. Detailed analysis of costs and benefits can be made, and evidence on specific issues can be gathered. Unfortunately, even at this level there are few conclusions based on studies of modern data.

The Ostry Message

Sylvia Ostry refers to what is going on in the TRIAD today as a "struggle over competitive dominance in leading-edge industries." I think this is the right way to put it. It is much more accurate than saying that countries are concerned over their competitiveness.[2] This struggle has had a number of world-shaking consequences. It has led to new forms of symbiotic relations between industry and the state. It has also led to such developments as managed trade and unilateral sanctions levied with the ostensible objective of improving multilateral trading relations.

The most important consequence of the struggle is what Sylvia Ostry calls systems friction—international frictions that are caused by different ways of doing things in different countries. In the past, these different ways were accepted as various background data to international trade. Today, with globalization and close industrial-governmental relations, the differences seriously affect trade and investment flows and cause major international conflicts.

How do these struggles affect a small, trading country such as Canada? The list of possible answers to my question frightens me because all of the developments analyzed by Sylvia Ostry are struggles among large transnational corporations (TNCs) and also among the governments of large countries. Smaller players are more likely to gain from relatively free trade among a large number of competing units. In the political-economic trading that is determined by bargaining among governments and large TNCs their interests tend to be pushed aside.

The policy conclusion that follows from this analysis is that Canada has much to lose from the rise of such things as managed trade, United States unilateralism and bargaining over international systems friction, and has much to gain from the preservation of the older, multilateral trading system governed by the GATT. The multilateral system, inevitably, is being eroded and Canadians have a large stake in preserving as much as we can of that system.

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[2] This latter term has become one of those great misused words of our decade. Everyone uses it and no one knows what it means. Most standard definitions are ambiguous enough to be non-operational.

This implies that preserving multilateralism is an end in itself, regardless of the particular issue under consideration. Thus, regardless of the calculus of specific Canadian gains and losses from IP protection, we need to put all of our support behind the multilateral determination of such protection. Failure to negotiate such protection in the Uruguay Round could be interpreted as one more indication that the multilateral approach has lost its vitality. We should support a particular regime for IP protection and, in doing so, understand that we are supporting the concept of the multilateral system at the same time.

David Watters told us Canada's objectives in the current GATT negotiations are to provide more effective, clear, fair, non-discriminatory, transparent rules and guidelines for IP protection. Within this broad framework, the specific Canadian objectives are: to remove discriminatory border measures; to move other countries up to the higher level of protection that is provided in Canada and the United States; to avoid the creation of any new barriers; and to provide a dispute-settlement mechanism within the GATT for IP. However, David Watters was pessimistic about the outcome of these negotiations and Canadians should be concerned for the reasons already explained—anything that weakens multilateral forces within the context of the developing, new forces of system friction can cause significant, potential harm to small, trading nations such as Canada.

The Rosenberg Message

In his book, "How the West Grew Rich,"[3] Nathan Rosenberg made the point that one of the major sources of success for western nations in the industrial era has been their ability to evolve institutions that assisted economic development (e.g., the joint stock company). There is now a new international challenge based on the latest industrial revolution—the human-capital-oriented, science-based, globally competitive revolution. Governments need to rethink their concepts of competition policy, unacceptable monopolies and industrial-governmental relations. One item on the agenda is the need for new IPR legislation. The old copyright and patent laws, which served their countries well in the late 19th and early 20th centuries, are now obsolete in many ways.

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[3] Nathan Rosenberg and L.E. Birdsell, Jr., *How the West grew rich: the economic transformation of the industrial world*, (New York, Basic Books, 1986).

If we are going to reform a system, it helps to understand how it functions now, and how it yields its costs and benefits. As Howard Wetston pointed out, it is important to view the IPR and competition policy regimes as complementary parts of a more general system. This means, among other things, that those who administer one regime should have input into the reform of the other.

Douglas James told us why selective use of patents is a valuable, but limited, tool to a small player in international competition and pleaded for simplifying the regime—rather than complicating it, as so many reforms often do. George Fisk explained how patents can be used innovatively to create an intellectual property asset from a company's R&D. Keith Maskus discussed the place patents have in the functioning of the economic system. In the broadest sense, they set up a trade-off between encouraging dynamic gains through R&D and encouraging unduly high profits by restricting competition. However, the consensus is that one should not over estimate the restrictions to competition caused by the current patent system. Furthermore, as Howard Wetston pointed out, and Schumpeter long ago told us,4 something that impedes competition in the short run, when technology is taken as fixed, can turn out to encourage it in the very long run, when technology changes in response to economic incentives.

Gilles Bertin told us Europe 1992 offers hope of the EEC simplifying its IP regime by adopting common EEC rules and procedures. If simplified procedures provide an important competitive advantage, there is strong stimulus for simplification elsewhere. The Uruguay Round is the obvious place to start but, if that effort fails, there will be a push for regional groupings, wherein IPR issues could be simplified.

In restructuring intellectual property rights, many considerations need to be given play.

First, it must be decided how far one can, and should, try to push the system. Laws that are systematically ignored serve little

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4. Joseph Alois Schumpeter, "The Theory of Economic Development," (Leipsig, Duncker and Humblot. Trans. R. Opie, Cambridge, Mass., Harvard University Press, 1934). Reprinted (New York, Oxford University Press, 1961).

purpose except to bring the legal system into disrepute. Yet there are many laws on the statute books that fall into this category. The laws on IPP should encode what we think is possible out of the larger set of what we think is desirable. Several speakers warned us that this is not necessarily going to be the outcome.

Second, the rules need to be workable. Those who have been involved have told us that, in practice, the existing regimes are cumbersome in ways that may not be obvious to those who deal in abstractions and principles. We heard, for example, of the sheer physical difficulty of ascertaining whether one is in serious danger of violating someone else's legally protected position. Companies have to conduct manual searches of domestic patent records, find what might be relevant in foreign records, decide which foreign copyrights (out of the dozens that might be relevant) to have translated, and a host of similar practical complications.

Third, the administrative provisions for control and dispute settlement must be adequate and workable. Gordon Henderson explained the dissatisfaction that Canadian industry, particularly the smaller firms, has with the current IP regime in general, and the litigation process in particular. For example, high-technology firms are inclined to believe that Canadian IPRs discourage the amount of R&D they conduct in Canada! He raised two possible solutions to the dispute-resolution issue at the domestic level: to initiate a private system of dispute resolution through arbitration and to give a panel of experts quasi-judicial jurisdiction over patent enforcement. These ideas are representative of the innovative thinking that is needed to revise institutions so as to reduce both the uncertainty and the high costs associated with leaving enforcement to the courts. Joseph Greenwald discussed the problem of resolving IP disputes at the international level through the GATT. We can only cross our fingers and hope that some of the needed reforms will make it through the Uruguay Round.

Conclusion

Intellectual property is rapidly becoming the most important factor of production in the modern world. Designing new institutions for regulating and protecting IP is, therefore, an important task. Without them, there may be less incentive to create and innovate. Although we do not know how intellectual capital responds to the incentives that go with effective protection, it would be rash to assume that it did not respond at all. To assume it does not, and to be wrong, would have very serious consequences for the economic growth of the West.

Let us hope, therefore, that the task of designing a new regime for IPP will be successful; that it will be done in such a way that it supports the multilateral trading system; and that it will encourage the growth of intellectual capital. If all of this comes to pass, a future Nathan Rosenberg, writing a book in the middle of the 21st century, will come to his chapter on "Institutions" and to its sub-section on "The New Intellectual Property Regime" and have cause to write "... here is one of the significant reasons why my book is entitled, *How the World Continued to Grow Richer*.

Rapporteur's Remarks: Toward a Canadian Policy Framework

Morris Rosenberg

A major finding derived from the various sessions of this conference is that IP is expected to play an increasingly important role in Canadian and international economic development and trade performance in the foreseeable future. Innovation, creativity, and increased research and development, all of which require IP protection, are necessary not only for the rapidly emerging field of information technology, but are also critical if we are to support the international competitiveness of Canadian industry. While conference participants recognized that an effective IP framework is an important policy instrument, it is by no means seen as a panacea. IP, among a number of policy instruments (including competition policy, education and training, etc.), will help to position Canadian industry in the globalized marketplace.

A related theme is that the IP system, to which these expectations are being attributed, doesn't exist yet. In a real sense, we are in the midst of formulating an IP system that will have to respond to a rapidly changing marketplace.

The development of new technologies in the information, communication and biotechnology fields provides the framework for a fundamental transformation to a globalized economy that is based on knowledge.

These new technologies are evolving with great speed, so that the technological status quo is no longer static: as Mr. Ferchat noted today, change equals stability.

The implications of these dynamic changes for IP policymakers are, primarily, that new technologies may call for new solutions, and for a new balancing point. At a minimum, we must be prepared to consider the development of new types of IP, as a number of countries did in relation to semi-conductor chip protection. Debate about the appropriateness of sui generis approaches is now ongoing in the biotechnology field as well as in relation to computer software.

More fundamentally, the whole issue of how to design international and domestic legal instruments that can cope with the constant need to adapt to new technologies will have to be dealt with.

This raises a number of issues. At the international level, it raises the concern that any TRIPS agreement must be sufficiently flexible to accommodate the rapidly evolving new technologies without sacrificing a reasonable degree of certainty. It also raises the more fundamental, institutional question of whether GATT, as presently constituted, is capable of accommodating rapid change. A meeting once every few years of GATT contracting parties in a Round to deal with new issues will not be an adequate institutional response. A permanent framework for policy-making in the international trade field must be put in place to ensure that the international trading rules remain relevant. The World Trade Organization model recently proposed by Canada might be a possibility.

Assuming that such an institution were established, difficult issues of jurisdiction between it and other institutions with related responsibilities (e.g., WIPO) would have to be worked out. In addition, for any international policy developmental process to be meaningful, new mechanisms would have to be devised for consultation with affected private-sector interests.

In discussing the impact rapid technological change will have on international trade rules, there is an irony because the international legal framework I am, by implication, criticizing as not being adaptive enough, doesn't even exist yet. But it is significant that TRIPS is on the GATT regulatory agenda for the first time in this Round. We should also be mindful that a great deal of work is underway in WIPO on a wide variety of IP issues, including international harmonization of patent and trade mark law. A number of speakers reiterated that tangible benefits for the business community would result from harmonization. Converging domestic legal rules, through exercises like WIPO harmonization, is necessary to reap the benefits of trade liberalization and globalization.

Both WIPO and GATT exercises are important to Canada, to ensure Canadian exports have fair access to foreign markets and to facilitate the transfer of technology. They will also have major implications for the future if Canada is to develop its own IP laws independently.

Another key international issue is the need for an effective dispute-settlement mechanism. As Mr. Greenwald and others have pointed out, no mechanism exists under the WIPO system.

To a large extent, the success of any TRIPS agreement will be measured against the effectiveness of its dispute-settlement system. Hopefully, a new dispute-settlement mechanism will reduce countries resorting to unilateralism, although I am not heartened by Mr. Greenwald's comments about probable U.S.A. tenacity in maintaining Section 301.

In the absence of a mechanism to handle rapid policy change in international trade rules, the credibility of these rules will be enhanced by the development of a dispute-settlement system that is flexible and dynamic.

Turning to the issue of designing domestic legal instruments, another theme identified by various speakers is the need for legislative renewal in the IP area.

Recent successes in relation to patents and copyrights are important but, as a number of commentators have noted, we need to develop mechanisms that will modernize our IP statutes. The Department of Consumer and Corporate Affairs is well aware of the difficulties encountered when modernizing economic-framework legislation, and we are taking steps to facilitate needed legislative change.

The first step involves improved consultation with interested private-sector parties. IPAC was established for this purpose. The three specific goals established at its inception were to encourage a two-way exchange of IP advice and information, to build consensus and facilitate exchange, and to provide early feedback on new proposals.

At the most recent IPAC meeting, held in March 1990, the issue of legislative modernization was paramount. The focus of the main plenary session was to evaluate the urgency of the various issues that might be addressed in the next few years, and to prioritize them. These suggestions will prove useful in making recommendations to the government on an IP legislative plan. It was agreed that highest priority should be given to securing enactment of the Bills currently in Parliament (that is, the *Integrated Circuits Protection Bill* and the *Plant Breeders' Rights Bill*). Any changes arising from a new GATT agreement (including IP items) will also be given high priority as part of a GATT Implementation Bill. In addition, IPAC recommended that priority be given to tabling the next phase of copyright amendments. A proposed *Intellectual Property Improvement Bill* was also endorsed by IPAC. The *Intellectual Property Improvement Bill* represents an approach to legislative design, and this should greatly improve its chances of being passed.

Recent experience indicates that attempts at comprehensive reform of framework legislation are unlikely to succeed. Our successes have led us to abandon the comprehensive approach in favour of a modest, "small packages" approach to legislative change. The *Intellectual Property Improvement Bill* would be consistent with this approach. It would group amendments to a number of IP statutes on which there is support for change. It is recognized that a short bill, limited to a number of key amendments, is the preferred approach. If the bill becomes unwieldy in size, or contains a number of controversial issues, it will be extremely difficult to get it through the House, given the Government's charged legislative agenda. Items for inclusion in the *Intellectual Property Improvement Bill* will be developed in consultation with interested parties and through IPAC sub-groups established to deal with industrial design, trade marks and revisions to patent law.

While we can all support the development of new legal frameworks in the IP area at both the international and domestic levels, for these legal frameworks to contribute to the competitiveness of Canadian business, we need to raise the consciousness of the business sector about the benefits of intellectual property. The session dealing with business strategies and IP stressed the important role IP can play in corporate strategies of both large and small companies. The research at CCAC indicates that while top R&D performers and major copyright groups are very knowledgeable about IP, many small companies and companies outside of central Canada could benefit from greater and more effective utilization of Canada's IP statutes. The CCAC report reflected that few Canadians are aware of the importance of IP to Canadian economic performance, cultural development and national identity. Many respondents suggested that a major information program be established to improve awareness of the IP system, including how to access information, as well as to enhance understanding of fundamental IP concepts.

In the past, Canadians have made insufficient use of the wealth of technological information contained in the 23 million patents, from many countries around the world, that are on file in the Canadian Patent Office. In 1983, the Office was given a further mandate to disseminate patent information to business, industry and research organizations. As a result, the Patent Information Exploitation Program (PIEP) was developed. Its objectives are to improve technical intelligence, provide an expert interface, make patent information more accessible and to increase public awareness.

A network of intermediary organizations has been built up to transmit requests for technological information to the Patent Office. The public education program has been involved with increasing the public's awareness and understanding of IP laws. There now are full or part-time, regional patent advisors in Toronto, Montreal and Vancouver, who act as links between the Patent Office and the intermediary network, as well as other clients Similarly, the National Research Council's technology identification and access programs, implemented through the Provincial Research Councils, will make technological identification by Canadian companies easier. In addition, the planned automation of the Patent Office, which the Minister mentioned in his speech, will greatly facilitate improved access to Canadian and foreign patent holdings.

The business sector itself must take responsibility for increasing its level of IP awareness. All three speakers at the first session this morning stressed the need for companies to search patent literature before engaging in R&D. In addition, as George Fisk mentioned, companies need a strategy for defending against litigation and an offensive strategy for protecting their companies' Intellectual Property.

Finally, I would like to note a few subjects that governments, business and universities should consider undertaking for further research, to ensure that Canadian IP policy and legislative and program delivery mechanisms remain relevant. This does not purport to be an exhaustive list:

- How do IP regimes (patents in particular) encourage innovation; what are complementary, effective policy instruments?

- What are the limits to accommodating new technologies within existing IP statutes; to what extent should we be looking to the development of sui generis regimes?
- In general we need to think of more effective ways to ensure that domestic and international legal instruments are capable of adapting to technological change, and to keep up with the shifting points of balance between creator and user interests.
- What improvements are necessary in our existing consultative processes for governments to work more effectively with private-sector interests in developing policy in this area?
- What legislative processes can be developed to respond quickly and effectively to rapid change and special needs?
- How do we streamline the Court system to make it more meaningful for the enforcement of IP rights? A number of the questions raised by Mr. Henderson and Mr. Smit could be explored in this research, including the feasibility of a specialized IP court and a specialized administrative tribunal to deal with compulsory licensing and other issues; IP awareness for judges; and the use of commercial arbitration.

Key to Acronyms

CAD	computer-assisted design
CADAPSO	Canadian Association of Data and Professional Service Organizations
CAM	computer-assisted manufacturing
CCAC	Consumer and Corporate Affairs Canada
CEO	chief executive officer
CFC	Chlorofluorocarbon
CIM	computer-integrated manufacturing
CPDL	Canadian Patents and Development Limited
CPO	Canadian Patent Office
DARPA	Defense Advanced Research Planning Agency
DREV	Defence Research Establishment Valcartier
EEC	European Economic Community
EFTA	European Free Trade Association
EPO	European Patent Organization
ETC	European Technology Commission

ETO	European Trade Marks Office
FIRA	Foreign Investment Review Agency
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GDP	gross domestic product
HAW	Hawaiian
IC	integrated circuits
ICT	information and communications technologies
IMF	International Monetary Fund
IP	intellectual property
IPAC	Intellectual Property Advisory Committee
ITO	International Trade Organization
IPP	intellectual property protection
IPR	intellectual property rights
ISTC	Industry, Science and Technology Canada
IT	information technology
ITAC	Information Technology Association of Canada
MFN	most-favoured nation
MNC	multinational companies
NIE	newly industrialized economy
NOC	notice of compliance
NRC	National Research Council
NTB	non-tariff barriers
OECD	Organisation for Economic Co-operation and Development
PACRIM	Pacific Rim
PC	personal computer
PIEP	Patent Information Exploitation Program
R&D	research and development
SDI	strategic defense initiative
SII	Structural Impediment Initiative
TAT	Trans Atlantic Telecommunications

TNC	transnational corporations
TPC	Trans Pacific Communications
TQC	total quality control
TRIMS	trade-related investment measures
TRIPS	trade-related aspects of intellectual property
UNICE	Union des Industries de la Communauté Européenne
USPO	United States Patent office
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Biographies of Authors

Gilles V. Bertin

G.V. Bertin is Research Director at the French National Center of Scientific Research (CNRS), Associate Professor at the University of Paris, Dauphine, and Executive Director of AREPIT, an association devoted to studies in the field of I.P. and Technology. He is also an expert on I.P. and International Transfers for the I.I.C. and European Patent Agency (E.P.A.) and U.N.C.T.A.D. He has written several books and articles alone or with co-authors on multinational patenting and transfer and I.P. policies.

The Honourable Pierre Blais

The Honourable Pierre Blais is currently Minister of Consumer and Corporate Affairs. He was appointed Solicitor General in January 1989, after serving as Minister of State for Agriculture since August 1987. Mr. Blais represents the riding of Belle-chasse in Quebec. A native of Berthier-sur-mer, he obtained a B.A. from Collège Ste-Anne-de-la Pocatière and a law degree from Laval University. Mr. Blais was first elected to the House of Commons in

1984. He was appointed Parliamentary Secretary to the Minister of Agriculture and reappointed in November 1985.

Jocelyne Bourgon

Jocelyne Bourgon is Deputy Minister of Consumer and Corporate Affairs Canada. Born in Papineauville, Québec, she has a Master's degree in Business Administration from the University of Ottawa and a Bachelor's degree in Biology from the University of Montreal. Ms. Bourgon has been Assistant Deputy Minister, Corporate Policy and Communications, with Energy, Mines and Resources, since April 1987. From 1985 to 1987, she served as Assistant Secretary to the Cabinet for Federal-Provincial Relations Office (Economic Policy and Programs). Before joining the FPRO, she was Director General, Food and Consumer Products, in the Department of Regional Industrial Expansion. From 1975 to 1983, she held various senior positions in the Departments of Fisheries and Oceans and Transport. Ms. Bourgon was a member of the Federal Business Development Bank and is currently a member of the Board of Directors of the National Film Board.

Carlos Alberto Primo Braga

Dr. C.A. Primo Braga is Assistant Professor of Economics at the University of Sao Paulo and senior researcher at the Fundacao Instituto de Pesquisas Economicas, Sao Paulo, Brazil. Since 1988, he has also been a Visiting Professor at The Johns Hopkins School of Advanced International Studies. Dr. Primo Braga received his Ph.D. in Economics from the University of Illinois at Urbana-Champaign (1984). Since then he has served as an economic consultant to many Brazilian private companies and governmental institutions. Currently, he also serves as a consultant to the World Bank and the Organization of American States. Dr. Primo Braga's main publications cover multilateral trade negotiations, intellectual property rights, Brazilian trade policies, and the foreign debt of Latin America.

Roch Brisson

Mr. Roch Brisson was awarded an M.S. from the University of Sherbrooke in 1973, then a law degree in 1978. He went on to earn a post-graduate degree from the Université de Strasbourg.

He was legal advisor to the Department of Energy, Mines and Resources from 1979 to 1982 and the Department of Science and Technology from 1982 to 1985. He served as director of Lobiotech International from 1986 to 1989.

Since 1989, Mr. Brisson has been an advisor on intellectual property and industrial agreements for the Centre de Recherche Industrielle du Québec (C.R.I.Q.).

Mr. Brisson has written or co-authored several publications, including: *Protection juridique du logiciel sur le marché européen* (Legal Protection of Software in the European Market); *La protection nationale européenne des logiciels québécois via différents régimes de propriété intellectuelle* (National European Protection of Quebec Software Involving Different Systems of Intellectual Property); and *Les Licences obligatoires et leurs impacts notamment dans l'industrie des biotechnologies au Canada* (Required Licenses and Their Impact, Particular with Respect to the Canadian Biotechnology Industry).

Geza Feketekuty

Geza Feketekuty is counselor to the U.S. Trade Representative, where since 1976 he has developed and coordinated U.S. trade policy, including trade in services. He played a key role in coordinating U.S. participation in the Tokyo Round of Multilateral Trade Negotiations and in the preparations for the Uruguay Round of multilateral trade negotiations. He was formerly senior staff economist for international finance and trade with the Council of Economic Advisers and an economist and budget examiner with the Office of Management and Budget. He has also been an instructor in economics at Princeton University, a visiting professor at Cornell University, and an adjunct professor at the School of Advanced International Studies of Johns Hopkins University. He is the author of *International Trade in Services: An Overview and Blueprint for Negotiations*.

Robert A. Ferchat

Currently Chairman of Atomic Energy of Canada, Robert A. Ferchat retired as President of Northern Telecom Canada February 1, 1990. He had joined Northern Telecom Limited in 1977 as vice-president and controller. He was appointed president, Northern Telecom Canada Limited in June 1985, responsible for the company's Canadian manufacturing and marketing operations and its sales and marketing subsidiary in the Caribbean region and Latin America. Mr. Ferchat's extensive business career included 16 years in the automotive industry with Ford Motor Co. of Canada. A chartered accountant, he held numerous corporate directorships including Bell-Northern Research and ORTECH International. He is former chairman of the Information Technology Association of Canada. Mr. Ferchat is chairman of the Canada-Korea Business Council, a member of the federal government's International Trade Advisory Committee and chairman of the Sectoral Advisory Group on International Trade (SAGIT) for computers and telecommunications.

George E. Fisk

George Fisk is a partner in the law firm of Gowling, Strathy & Henderson, where he does litigation dealing with patents, trade marks and copyrights, as well as international licensing of intellectual property and computer software. He is Associate Editor of the *Canadian Patent Reporter*, a former chairman of the Patent Legislation Committee of the Patent and Trade Mark Institute of Canada and a regular contributor to the *Canadian Computer Law Reporter*. He has taught University courses in "Intellectual Property Law" and "The Law and Policy of High Technology". He is the author of approximately 40 papers on intellectual property matters or protection of computer software, and has given speeches to many groups on these issues. In 1987 and 1989 he was sent by the World Intellectual Property Organization (a United Nations Agency) to lecture on Copyright and Software Licensing in Thailand, Korea and Viet Nam.

Joseph A. Greenwald

Ambassador Joseph A. Greenwald specializes in international negotiations, trade law counselling and litigation, international economic issues, export-import trade, and advisory services for multilateral trade negotiations. He is a member of the Editorial Advisory Board of Europe-1992, The Report on the Single European Market. In 1988, Ambassador Greenwald was a member of the panel of the General Agreement on Tariffs and Trade (GATT) convened to rule on a dispute between Japan and the European Community that arose as a result of the U.S.-Japanese semiconductor agreement. In 1989, he was appointed chairman of the GATT dispute panel on EC regulation of imports of parts and components. Ambassador Greenwald served as Assistant Secretary of State for Economic and Business Affairs (1975-1976), Ambassador to the European Communities (1972-75), and Ambassador to the Organization for Economic Cooperation and Development (1969-72).

Gordon F. Henderson

Gordon F. Henderson is a partner in the law firm of Gowling, Strathy & Henderson, of Ottawa. A graduate of the University of Toronto and Osgoode Hall, he was called to the Ontario Bar in 1937 and the Quebec Bar in 1952. He was created Queen's Counsel in 1953 and a Companion of the Order of Canada in 1988. Mr. Henderson is editor of the *Canadian Patent Reporter*, Chairman of the Performing Rights Organization of Canada, Chairman of the Board, Ottawa Congress Centre, and President, Music Promotion Foundation, as well as a director of several companies. His awards include the Testimonial Dinner Award of the Canadian Bar Foundation and honourary degrees from the University of Ottawa, the Law Society of Upper Canada, and Carleton University. Mr. Henderson was the founder and first chairman of The Canadian Law Information Council and is a former chairman of the Industrial Property Committee of the Business Law Section of the International Bar Association.

Graeme Clive Hughes

Trained as a lawyer in Australia and London, England, Graeme Hughes first worked as a barrister in Sydney, Australia. Upon arrival in Canada in 1968 he was employed by the Canadian Manufacturers' Association, where he ultimately became senior executive vice-president and secretary. In 1985, Mr. Hughes accepted the position of President of the Canadian Business Equipment Manufacturers Association. Shortly thereafter he oversaw the transformation of the organization into the Information Technology Association of Canada, the country's premier spokesgroup for the $30 billion computer and telecommunications sector. Mr. Hughes a graduate of Canada's National Defence College, has written two books on the Canadian Foreign Investment Review

Act, plus numerous monographs and articles on societal institutions, trade and industrial policy.

The Honourable Frank Iacobucci

The Honourable Frank Iacobucci is Justice of the Supreme Court of Canada and was formerly Chief Justice of the Federal Court of Canada. Born in Vancouver, B.C., in 1937, the Chief Justice received his B.Com. from the University of British Columbia in 1961 and his L.L.B. the following year. In 1964, Cambridge University awarded him the L.L.M. and in 1966, the Diploma in International Law. He was called to the Bar of Ontario in 1970 and was awarded the Law Society Medal of the Law Society of Upper Canada. In 1989, he received an Honourary Doctor of Laws from the University of British Columbia and from the University of Toronto. He joined Dewey, Ballantine, Bushby, Palmer & Wood of New York, in 1964 and specialized in corporate law and related fields until 1967. In 1967, he joined the University of Toronto and was appointed Dean of Law in 1979. He was Vice-President and Provost from 1983 to 1985, at which time he was appointed Deputy Minister of Justice and Deputy Attorney General of Canada. In September 1988 he was appointed Chief Justice of the Federal Court of Canada.

Douglas J. James

Douglas James received the degrees of BSc in 1963 and PhD in 1989, both in Applied Physics from the University of Hull in England. From 1965-1976 he was a lecturer in Applied Physics at the University, with research interests in lasers and their application to plasma physics. In 1976, he joined Lumonics Inc. where he has held a number of senior management and technical positions. Currently, he is Executive Vice-President and Chief Technology Officer of the Corporation. In addition, he is Chairman of the Board of Directors of the Ontario Laser and Lightwave Research Centre.

Robert Johnstone

Robert Johnstone is Executive Director at the Ontario Centre for International Business. Born in New York in 1932, Robert Johnstone received a B.A. Degree from the University of Toronto in 1954 and a M.Sc. (Econ.) Degree from Laval University in 1957. He then joined the Research Department of the Bank of Canada and subsequently did post-graduate work at the London School of Economics during 1959-60.

He remained with the Bank of Canada until 1975, serving also during this period as Assistant Director of Research for the Royal Commission on Banking and Finance (1962-1964) and with the International Monetary Fund (1967-1971), first as a member of the fund staff and then for three years as Executive Director for Canada, Ireland, Jamaica and Guyana.

In 1975 Mr. Johnstone was appointed Executive Director of the Anti-Inflation Board where he remained until November 1977 when he joined the Department of External Affairs as Deputy Under-Secretary (Economic). He was also appointed by the Prime Minister as his personal representative for economic summits. In March 1980 Mr. Johnstone became Deputy Minister, Industry, Trade and Commerce and two years later returned to the Department of External Affairs as Deputy Minister (International Trade) and Coordinator, International Economic Relations. On February 1, 1984 Mr. Johnstone was appointed Consul General of Canada in new York and concurrently Commissioner for Canada to Bermuda.

On November 1, 1988 Mr. Johnstone was appointed Executive Director of The Ontario Centre for International Business, a partnership of the Business and Law Faculties of York University, the University of Toronto and Wildfrid Laurier Univers[illegible] for Teaching, Research and Assistance to firms about international business.

Geraldine Kenney-Wallace

Geraldine Kenney-Wallace is President of McMaster University and previously was the Chairman of the Science Council of Canada. She is a member of both the National Advisory Board on Science and Technology chaired by the Prime Minister and the National Round Table on Environment and Economy, and the Ontario Premier's Council on Science and Technology. A native of London, England, Dr. Kenney-Wallace was educated in Oxford and London, received her M.Sc. and Ph.D. from the University of British Columbia, has six honourary degrees, was E.W.R. Steacie Fellow 1984-86, and is a Fellow of the Royal Society of Canada. Dr. Kenney-Wallace is a noted international authority on lasers and opto-electronics and the author of over ninety research publications. The Royal Society of Chemistry (U.K.), the Guggenheim and Sloan Foundations (U.S.A.) and the Chemical Institute of Canada have honoured her work.

Peter David Lee

Mr. Lee is Senior MTN Coordinator – New Issues, Multilateral Trade Negotiations Office, Ottawa, External Affairs and International Trade Canada, 1988; Assistant Chief Trade Negotiator Coordinator, Multilateral Trade Negotiations, Trade Negotiations Office, Ottawa, 1986-88; Minister, Deputy Permanent Representative, Mission of Canada to the United Nations, New York, 1982-86; Chairman, Task Force on Trade in Services, Department of External Affairs, 1981-82; Executive Secretary, Planning and Preparations 1981 Summit, 1980-81; Director-General, Energy Trade & General Economic Relations, Department of External Affairs, 1979-80; Minister-Counsellor, Deputy Head of the Canadian Mission to the European Communities, Brussels, 1975-79; Economic Counsellor, Canadian Embassy, Department of External Affairs, Tokyo, 1972-75; Commercial Policy Division, Department of External Affairs, 1969-72 and Deputy Director, 1971-72. Previously served in Tehran, Geneva and Ottawa and briefly in Madrid and Copenhagen.

Charles S. Levy

Now with Wilmer, Cutler & Pickering, Charles Levy was previously a partner in the U.S. law firm of Mayer, Brown & Platt. Mr. Levy advises U.S. and foreign corporations on international trade and investment issues. He has served as Counsel to the House Foreign Affairs Subcommittee on Foreign Economic Policy, Legislative Assistant to U.S. Senator Adlai E. Stevenson, Legal Advisor to U.S. International Trade Commissioner Paula Stern, and Vice President of the Emergency Committee for American Trade, a trade association of U.S. multinational corporations. He is currently a member of the U.S. Trade Representative's advisory committees on investment and intellectual property. Among Mr. Levy's clients are The Business Roundtable's Task Force on International Trade and Investment; the Coalition of Service Industries/Financial Services Group; the Computer Systems Policy Project; the Intellectual Property Committee (IPC), which issued, in cooperation with the KEIDANREN and UNICE, "the Basic

Framework of GATT Provisions on Intellectual Property: Statement of Views of the European, Japanese and United States Business Communities;" and the International Investment Alliance, which recently published "A Negotiating Strategy and Framework for a GATT Agreement on Investment." In 1986, the *National Journal* included Mr. Levy on its list of the 150 most influential private sector representatives in Washington.

Richard G. Lipsey

Dr. Richard G. Lipsey is currently professor of economics at Simon Fraser University and a fellow of the Canadian Institute for Advanced Research, for which he is directing international research projects on Economic Growth and Policy. Dr. Lipsey received his B.A. from U.B.C. in 1951, M.A. from Toronto in 1953 and PhD from London School of Economics in 1957. He has held a chair in Economics at the London School of Economics and was chairman of the Department of Economics and dean of the faculty of Social Science at the University of Essex, in England. He also held visiting appointments at various universities in England, and the U.S., and the Universities of British Columbia and Victoria. From 1970 to 1986, he was Sir Edward Peacock professor of Economics, Queens University, Kingston, Ontario. He was senior economic advisor for the C.D. Howe Institute, 1983-89, where he supervised many research projects and edited the Institute's Inflation and Trade Monitors. He co-authored monographs on Canada's Trade Options (with Murray Smith) and on the Canada-U.S. Free Trade Agreement (with Robert York).

The Honourable Flora MacDonald

The Honourable Flora MacDonald served 16 years as Member of Parliament for Kingston and the Islands during which time she held three Cabinet positions: Secretary of State or External Affairs (1979-80), Minister of Employment and Immigration (1984-86) and Minister of Communications (1986-88). During her time as an Opposition Member of Parliament, she held the critic's post for Indian Affairs and Northern Development, Federal-Provincial Relations, External Affairs and Status of Women. Born and educated in North Sydney, Nova Scotia, Flora MacDonald is a graduate of the Empire Business College and, in 1972, became the first woman to complete successfully the National Defence

College's one-year course in Canadian and International Studies. Ms. MacDonald served as executive director of the Progressive Conservative National Headquarters from 1957 to 1966.

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Keith E. Maskus is an associate professor of economics at the University of Colorado, Boulder, and Director of the University's Carl McGuire Center for International Studies. He has been on the faculty at Colorado since 1981, when he received his Ph.D. in economics from the University of Michigan. Dr. Maskus has served as visiting scholar at the Federal Reserve Bank of Kansas City and the United States State Department. He has published numerous articles on empirical modelling of international trade theories and on U.S. trade policy.

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Sylvia Ostry is Chairman and Senior Research Fellow, Centre for International Studies, University of Toronto; Chairman, The National Council of the Canadian Institute of International Affairs; and Western Co-Chairman, The Blue Ribbon Commission for Hungary's Economic Recovery. She has a Ph.D. in economics from McGill University and Cambridge. After teaching and research at a number of Canadian universities and at the University of Oxford Institute of Statistics she joined the Federal Government in 1964. Among the posts Dr. Ostry held were Chief Statistician, Deputy Minister of Consumer and Corporate Affairs, Chairman of the Economic Council of Canada, Deputy Minister of International Trade, Ambassador for Multilateral Trade Negotiations and the Prime Minister's Personal Representative to the Economic Summit. From 1979 to 1983 she was Head of the Economics and Statistics Department of the OECD in Paris. Her most recent publications include *International Economic Policy Coordination*, a Chatham House paper (with Michael Artis) 1986; *Interdependence: Vulnerability and Opportunity*, Per Jacobssen Lecture, 1987; "Regional Trading Blocs: Pragmatic or Problematic Policy?" (with Michael Aho), *The Global Economy: America's Role in the Decade Ahead*, American Assembly, 1989; *Governments and Corporations in the Shrinking World: The Search for Stability*, Council on Foreign Relations, New York, 1990.

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Morris Rosenberg is presently Assistant Deputy Minister of the Bureau of Corporate Affairs and Legislative Policy, Consumer and Corporate Affairs Canada. He was Senior General Counsel in the Department of External Affairs and International Trade since April 1989. Prior to that, he served as Senior General Counsel to the Office of Trade Negotiations of the Free Trade Agreement with the United States. Mr. Rosenberg was General Counsel to the Department of Consumer and Corporate Affairs Canada from January 1986 to February 1988. Originally from Montreal, Mr. Rosenberg received his B.A. from McGill University, his LL. L. from the University of Montreal, and his LL. M. from Harvard University.

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Hans Smit is the Stanely H. Fuld Professor of Law, and Director of the Parker School of Foreign and Comparative Law at Columbia University. He is also visiting Professor, University of Paris I, and Paris II. Formerly a Reporter for the U.S. Commission on International Rules of Judicial Procedure, he is a Member of the New York and Netherlands Bars.

Murray G. Smith

Murray Smith became the Director of the Centre for Trade Policy and Law, Carleton University and the University of Ottawa, September 1, 1990. Previously, he was Director of the International Economics Program of the Institute for Research on Public Policy from June 1987. Before that he was with the C.D. Howe Institute, where he served as a Senior Policy Analyst and Canadian Research Director for the Canadian-American Committee. During the Tokyo Round of multilateral negotiations, he was Director of International Economic Relations in the British Columbia government. He is author or co-author of several books and articles on international economic issues. He is also co-editor of *Assessing the Canada-U.S. Free Trade Agreement* and *The Canada-U.S. Free Trade Agreement: The Global Impact*. His most recent publication is *Canada, the Pacific & Global Trade*, examining proposals for cooperation among Pacific economies in the context of Europe's 1992 agenda and the Uruguay Round of multilateral negotiations.

He serves on the roster of panelists for disputes under Chapter 18 of the Canada-U.S. Free Trade Agreement.

J.H. Warren

Jack Hamilton (Jake) Warren is the Principal Trade Policy Advisor for the Government of Quebec. Mr. Warren has had a distinguished career in Canadian government service and an active involvement in the private sector. In earlier years he represented Canada at most of the major international economic organizations: as Alternate Executive Director at the IMF and World Bank in the mid-1950s, on the Permanent Delegation to NATO and the OECD in the late 1950s, and in GATT negotiations in the early 1960s (where he was elected Chairman of the Contracting Parties in 1962 and again in 1964). He was Deputy Minister of Trade & Commerce, subsequently Industry, Trade and Commerce, from 1964-1971. Mr. Warren was appointed High Commissioner to the United Kingdom (1971-74), Ambassador to the United States (1975-77), and Canada's Coordinator for the Tokyo Round of Multilateral Trade Negotiations (1977-79). From 1979-1986, he was Vice-Chairman of the Bank of Montreal. He was educated at Queen's University and served as a naval officer in World War II. In 1975, Mr. Warren received the Outstanding Achievement Award of the Public Service of Canada and was appointed an Officer in the Order of Canada in June 1982.

David B. Watters

David B. Watters is currently Director General of Legislative Review Directorate, Consumer and Corporate Affairs Canada. In this capacity, he directs a staff of economists and lawyers who conduct all facets of the domestic and international policy or legislative revision programs relating to the Department's seventy statutes dealing with consumer, corporate, intellectual and industrial property responsibilities. Mr. Watters is also Canada's Principal Negotiator for trade-related intellectual property at the GATT Uruguay Round. Prior to assuming his present responsibilities, he held important senior positions with several Canadian Government agencies. Mr. Watters is a graduate of Queen's University, Kingston, Ontario, and also holds an L.L.B. from Queen's Law School.

Howard Wetston

Howard Wetston became Director of Investigation and Research, Bureau of Competition Policy, October 30, 1989. Previously, he was in private practice in Ottawa, associated with the firms of Burnet, Duckworth & Palmer (Calgary) and Phillips & Vineberg (Montréal). He had been working in the area of general administrative law, with emphasis on economic regulation, and represented clients before a number of regulatory boards and tribunals. Educated at Mount Allison and Dalhousie Universities, he is a member of the Ontario, Nova Scotia and Alberta Bars. Prior to entering private practice, he served as General Counsel to the Canadian Transport Commission and Assistant General Counsel to the National Energy Board. In 1981-82, he was General Counsel to the Consumers' Association of Canada and Director of the Association's Regulated Industries Program. From 1976 to 1980, he was a member of the Department of Justice as Crown Counsel. Mr. Wetston is a member of the Ontario, Nova Scotia and Alberta Bars. In addition, he is an adjunct professor of the Faculty of Law, University of Ottawa.

Bunroku Yoshino

Ambassador Bunroku Yoshino is Chairman, Institute for International Economic Studies, Tokyo, 1985; Special Adviser to the Minister for Foreign Affairs; Special Adviser to the Chairman, KEIDANREN; and President, Institute for International Economic Studies, Tokyo, 1983; Representative of the Japanese Government at the GATT Ministerial Meeting, Geneva, 1982; Ambassador Extraordinary and Plenipotentiary to the Federal Republic of Germany, 1977; Deputy-Minister for Foreign Affairs, 1975; Ambassador Extraordinary and Plenipotentiary, Permanent Delegation of Japan to the OECD, 1972; Director-General of the American Affairs Bureau, Ministry of Foreign Affairs, 1971; Envoy Extraordinary and Minister Plenipotentiary to the United States of America, 1968.

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L'honourable Pierre Blais

L'honorable Pierre Blais est ministre des Consommateurs et des Sociétes. Il a été nommé Solliciteur général en janvier 1989 et ministre d'État à l'Agriculture en août 1987. Natif de Berthier-sur-mer, M. Blais est député de la circonscription de Bellechasse. Il détient un B.A. du collège Ste-Anne-de-la Pocatière et est diplômé en droit de l'Université Laval. Élu pour la première fois à la Chambre des communes en 1984, M. Blais a été nommé secrétaire parlementaire du ministre de l'Agriculture et reconduit dans ses fonctions en novembre 1985.

Jocelyne Bourgon

Mme Bourgon est sous-ministre à Consommateurs et Sociétés Canada. Elle est née à Papineauville (Québec), et détient un baccalauréat en biologie de l'Université de Montréal et une maîtrise en administration de l'Université d'Ottawa. Avant sa nomination, Mme Bourgon était sous-ministre adjoint, Politique globale et Communications, à Énergie, Mines et Ressources Canada, depuis avril 1987. De 1985 à 1987, elle a été Secrétaire adjointe du Cabinet au Bureau des relations fédérales-provinciales (Politiques et programmes économiques). Auparavant, elle était directrice générale, Produits alimentaires, au ministère de l'Expansion industrielle régionale. De 1975 à 1983, elle a occupé divers postes au ministère des Pêches et Océans et à celui des Transports. Mme Bourgon est membre du conseil d'administration de l'Office national du film. Elle à déjà été membre du conseil de direction de la Banque fédérale de développement.

Carlos Alberto Primo Braga

Le Dr. C.A. Prima Braga est professeur adjoint d'économie à l'Université de Sao Paulo et chercheur principal au Fundacao Instituto de Pesquisas Economicas à Sao Paulo au Brésil. Depuis 1988, il est également professeur invité à la Johns Hopkins School of Advanced International Studies. Le Dr. Primo Braga a obtenu un doctorat en économie de l'Université de l'Illinois à Urbana-Champaign en 1984. Depuis, il est conseiller économique auprès de nombreuses compagnies privées et institutions gouvernementales brésiliennes. Actuellement, il est conseiller à la Banque mondiale et à l'Organisation des États américains. Les principales publications du Dr. Primo Braga portent sur les négociations commerciales multilatérales, les droits en matière de propriété intellectuelle, les politiques commerciales brésiliennes et la dette étrangère de l'Amérique latine.

Roch Brisson

M. Roch Brisson a fait ses études universitaires à l'Université de Sherbrooke en sciences commerciales en 1973; licencié en droit en 1978, et finalement à l'Université de Strasbourg.

Il fut conseiller juridique au Ministère de l'Énergie et des ressources de 1979 à 1982, et au Ministère de la science et de la technologie de 1982 à 1985. Il fut de 1986 à 1989 directeur de Lobiotech International.

Depuis 1989, M. Brisson est conseiller en propriété intellectuelle et en accords industriels pour le Centre de Recherche Industrielle du Québec (C.R.U.Q.).

M. Brisson a rédigé ou collaboré à plusieurs publications, y compris: *Protection juridique du logiciel sur le marché européen*; *La protection nationale européene des logiciels québécois via différents régimes de propriété intellectuelle*; et *Les licences obligatoires et leurs impacts notamment dans l'industrie des biotechnologies au Canada*.

Geza Feketekuty

Geza Feketekuty est conseiller au Bureau du Représentant au commerce des États-Unis où, depuis 1976, il a mis en oeuvre et coordonné les politiques commerciales américaines, y compris les politiques relatives au commerce des services. Il a joué un rôle primordial pour coordonner la participation des États-Unis lors du Tokyo Round des négociations commerciales multilatérales et dans la préparation des négociations commerciales multilatérales de l'Uruguay Round. Il a occupé les fonctions d'économiste en chef pour la finance internationale et le commerce auprès du Conseil consultatif économique et celles d'économiste et inspecteur du budget auprès du Bureau de la gestion et du budget. Il a également enseigné l'économie à l'Université Princeton, il a été professeur invité à l'Université Cornell et professeur adjoint à l'École d'études internationales avancées de l'Université Johns Hopkins. Il est l'auteur d'un ouvrage intitulé *International Trade in Services: An Overview and Blueprint for Negotiations*.

Robert A. Ferchat

Au present, le president de conseiller (AECC en Francais), Robert A. Ferchat a renoncé au poste de président de Northern Telecom Canada le 1er février 1990. Il a débuté à Northern Telecom Limited en 1977 en qualité de vice-président et de contrôleur. En juin 1955, il est devenu président de Northern Telecom Canada Limited et, à ce titre, a été chargé des opérations de fabrication et de commercialisation de la société au Canada, et de la succursale de commercialisation et de vente desservant la région des Caraïbes et de l'Amérique latine. Durant sa longue carrière dans le monde des affaires, M. Ferchat a notamment travaillé 16 ans dans l'industrie automobile chez Ford Motor Co. of Canada. Comptable agréé, il a siégé au conseil d'administration de plusieurs sociétés, notamment Bell-Northern Research et ORTECH International. Il a été président de l'Association canadienne de la technologie informatique. M. Ferchat est toujours président du Conseil canado-coréen des hommes d'affaires, membre du conseil d'administration du Comité consultatif sur le commerce extérieur du gouvernement fédéral et président du Groupe de consultation sectorielle sur le commerce extérieur pour les ordinateurs et les télécommunications.

George E. Fisk

George Fisk est partenaire de la firme d'avocats Gowling, Strathy et Henderson où il s'occupe des litiges qui concernent les brevets, les marques et les droits d'auteur, de même que les permis internationaux de propriété intellectuelle et de logiciels informatiques. Il est rédacteur associé du *Canadian Patent Reporter*, ancien président du comité des lois sur les brevets de l'Institut canadien des brevets et marques et rédacteur régulier du *Canadian Computer Law Reporter*. Il a donné des cours universitaires sur la propriété intellectuelle et le droit, et sur les politiques de haute technologie et le droit. Il est l'auteur d'environ 40 documents sur la propriété intellectuelle ou la protection des logiciels informatiques et a prononcé des discours devant de nombreux groupes sur ces mêmes questions. En 1987 et 1989, l'Organisation mondiale de la propriété intellectuelle (un organisme des Nations Unies) lui a demandé de prononcer des conférences sur les droits d'auteur et l'octroi de permis de logiciels en Thaïlande, en Corée et au Viêt-Nam.

Joseph A. Greenwald

L'ambassadeur Joseph A. Greenwald se spécialise dans les négociations internationales, le droit commercial et les litiges qui s'y rapportent, les questions d'économie internationale, l'import-export et les services consultatifs sur les négociations commerciales multilatérales. Il est également membre du Comité consultatif rédactionnel d'Europe-1992, Rapport sur le Marché Commun Européen.

En 1988, il faisait partie du comité de l'Accord général sur les tarifs douaniers et le commerce (GATT) créé en vue de régler le litige qui a opposé la Communauté européenne au Japon, consécutivement à la conclusion d'un accord entre ce dernier pays et les États-Unis sur les semi-conducteurs. En 1989, il a été choisi pour présider le comité du GATT chargé d'examiner le litige résultant de la réglementation des importations de pièces et de composants par la CE.

L'ambassadeur Greenwald a également servi comme secrétaire d'État adjoint aux affaires économiques et commerciales (1975-1976), ambassadeur à la Communauté européenne (1972-1975) et ambassadeur à l'Organisation pour la coopération et le développement économique (1969-1972).

Gordon F. Henderson

Gordon F. Henderson est associé du cabinet d'avocats Gowling, Strathy et Henderson d'Ottawa. Diplômé de l'Université de Toronto et d'Osgoode Hall, il a été admis au barreau de l'Ontario en 1937 et à celui du Québec en 1952. Il a également été nommé conseiller de la Reine en 1953 et compagnon de l'Ordre du Canada en 1988.

M. Henderson est rédacteur en chef du *Canadian Patent Reporter*, président de la Société des droits d'exécution du Canada, président du conseil d'administration du Centre des congrès d'Ottawa et président de la Music Promotion Foundation, de même que directeur de plusieurs sociétés. Il a notamment reçu le trophée du Testimonial Dinner de la Fondation du barreau canadien et des diplômes honorifiques de l'Université d'Ottawa, de la Société du barreau du Haut-Canada et de l'Université Carleton.

M. Henderson a été le fondateur et le premier président du Conseil canadien de la documentation juridique. Enfin, il a présidé le Comité de la propriété industrielle de la section du droit des affaires à l'Association internationale du barreau.

Graeme Clive Hughes

Après avoir obtenu une formation comme avocat en Australie et à Londres en Angleterre, M. Graeme Hughes a travaillé d'abord comme avocat à Sydney en Australie. A son arrivée au Canada en 1968, il a été employé par l'Association des manufacturiers canadiens dont il est devenu par la suite premier vice-président exécutif et secrétaire. En 1985, M. Hughes a accepté le poste de président de l'Association canadienne des fabricants d'équipement de bureau. Peu après, il a supervisé l'évolution de cette organisation devenue l'Association canadienne de la technologie informatique et le premier porte-parole du pays pour le secteur de 30 milliards de dollars de l'informatique et des télécommunications. M. Hughes est diplômé du Collège de la Défense nationale du Canada. Il a écrit deux livres sur la Loi canadienne sur l'examen de l'investissement étranger et un grand nombre de monographies et d'articles sur les entreprises et les politiques commerciales et industrielles.

The Honourable Frank Iacobucci

L'honorable Frank Iacobucci est juge en chef à la Cour fédérale du Canada. Né à Vancouver, en Colombie-Britannique, en 1937, il a obtenu son baccalauréat commercial de l'Université de la Colombie-Britannique en 1961 et son L.L.B. l'année suivante. L'Université de Cambridge lui a décerné son L.L.M. en 1964 et un diplôme en droit international en 1966. Accepté au barreau de l'Ontario en 1970, il a obtenu la médaille de la Société du barreau du Haut Canada. Enfin, en 1989, il a reçu un doctorat honorifique en droit de l'Université de la Colombie-Britannique et de l'Université de Toronto.

Après avoir rejoint le cabinet Dewey, Ballantine, Bushby, Palmer & Wood à New York en 1964, l'honorable Frank Iacobucci s'y est spécialisé dans le droit des compagnies et les domaines connexes jusqu'en 1967, date à laquelle il est retourné à l'Université de Toronto. En 1979, l'Université lui confie le poste de doyen de la faculté de droit. De 1983 à 1985, il assume la vice-présidence de l'Université, après quoi il est nommé sous-ministre de la Justice et sous-procureur général du Canada. En septembre 1988, il est nommé juge en chef à la Cour fédérale du Canada.

Douglas J. James

Douglas James a obtenu un baccalauréat ès sciences en 1963 et un doctorat en 1989 en physique appliquée de l'Université de Hull en Angleterre. Entre 1965 et 1976, il a été conférencier en physique appliquée à cette même université, traitant plus particulièrement du laser et de son application à la physique plasmatique. En 1976, il s'est joint à la firme Lumonics Inc. où il a détenu un certain nombre de postes administratifs et techniques importants. Actuellement, il est vice-président exécutif et technologue en chef de cette société. En outre, il est président du conseil d'administration du Laser and Lightware Research Centre de l'Ontario.

Robert Johnstone

Robert Johnstone est actuellement directeur exécutif du Centre des affaires internationales de l'Ontario. Né à New York en 1932, Robert Johnstone a reçu son B.A. de l'Université de Toronto en 1954 et son M.Sc. (en économie) de l'Université Laval en 1957. Après avoir été engagé au Service de la recherche par la Banque du Canada, il a fait des études supérieures à l'École d'économie de Londres en 1959-60.

Il est resté au service de la Banque du Canada jusqu'en 1975, période pendant laquelle il a également assumé les fonctions de directeur adjoint à la recherche pour la Commission royale sur la banque et la finance (1962-1964); il a également servi au Fonds monétaire international (1967-1971), tout d'abord en tant que membre du personnel du fonds puis, pendant trois ans, en tant que directeur exécutif pour le Canada, l'Irlande, la Jamaïque et la Guyane.

En 1975, M. Johnstone a été nommé directeur exécutif du Conseil contre l'inflation, fonction qu'il a occupée jusqu'en novembre 1977. Il a ensuite été nommé sous-secrétaire adjoint (économie) au ministère des Affaires extérieures. Le Premier Ministre l'a également désigné comme son représentant personnel lors des sommets économiques. En mars 1980, M. Johnstone est devenu ministre adjoint au ministère de l'Industrie et du Commerce et, deux ans plus tard, il est revenu au ministère des Affaires extérieures comme ministre adjoint (commerce international) et coordonnateur international des relations économiques. Le 1^er^ février 1984, M. Johnstone a été nommé Consul général du Canada à New York et, simultanément, Commissaire du Canada aux Bermudes.

Le 1^{er} novembre 1988, M. Johnstone a été nommé directeur exécutif du Centre des affaires internationales de l'Ontario, une association des Facultés des affaires et de droit de l'Université York, de l'Université de Toronto et de l'Université Wilfrid Laurier, qui a pour but d'offrir des services d'enseignement, de recherche et d'assistance aux entreprises, en matière de commerce international.

Geraldine Kenney-Wallace

Geraldine Kenney-Wallace est présidente de McMaster Université et, auparavant, elle était présidente du Conseil des sciences du Canada. Elle est membre du Conseil consultatif national des sciences et de la technologie, présidé par le premier ministre, de la Table ronde nationale sur l'environnement et l'économie, ainsi que du Conseil des sciences et de la technologie du premier ministre de l'Ontario. Originaire de Londres, Angleterre, Mme Kenney-Wallace a étudié à Oxford et à Londres, et elle a reçu sa maîtrise en sciences et son doctorat de l'Université de la Colombie-Britannique. Elle détient six dipômes honorifiques, a été boursière E.W.R. Steacie de 1984 à 1986 et est membre de la Société royale du Canada. Mme Kenney-Wallace est une sommité internationale dans le domaine des lasers et de l'opto-électronique et est l'auteure de plus de 90 documents de recherche. La Royal Society of Chemistry (R.-U.), les fondations Guggenheim et Sloan (É.-U.) et l'Institut de chimie du Canada ont honoré ses travaux.

Peter David Lee

M. Lee est coordonnateur principal au Bureau des négociations commerciales multilatérales. Il a été tour à tour : au service des Nouvelles questions, Bureau des négociations commerciales multilatérales, Ottawa, Affaires étrangères et Commerce international, 1988; coordonnateur en chef adjoint des négociations, Négociations commerciales multilatérales, Bureau des négociations commerciales, Ottawa, 1986-88; ministre, représentant permanent adjoint, Mission du Canada aux Nations unies, New York, 1982-86; président, groupe de travail sur le commerce des services, ministère des Affaires extérieures, 1981-82; secrétaire exécutif, planification et préparatifs pour le sommet de 1981, 1980-81; directeur général, relations en matière de commerce relatif à l'énergie et d'économie générale, ministère des Affaires extérieures, 1979-80; ministre-conseiller, directeur adjoint de la Mission canadienne auprès des Communautés européennes, Bruxelles, 1975-79; conseiller économique, Ambassade du Canada, ministère des Affaires extérieures, Tokyo, 1972-75; attaché auprès de la Division de la politique commerciale, ministère des Affaires extérieures, 1969-72, et directeur adjoint, 1971-72. Il avait auparavant été en poste à Téhéran, à Genève et à Ottawa et, pour une courte durée, à Madrid et à Copenhague.

Charles S. Levy

Maintenant avec Wilmer, Cutler & Pickering, Charles Levy était auparavant partenaire de la firme d'avocats américaine Mayer, Brown et Platt. Il est conseiller auprès de sociétés américaines et étrangères en matière de commerce et d'investissements internationaux. Il a été avocat auprès du sous-comité des affaires étrangères de la Chambre des représentants en matière de politique économique étrangère, adjoint législatif auprès du sénateur américain Adlai E. Stevenson, conseiller juridique auprès de la commissaire au commerce international des États-Unis, Paula Stern, et vice-président du Emergency Committee for American Trade, une association commerciale de multinationales américaines. Il est actuellement membre du comité consultatif du représentant commercial des États-Unis en matière d'investissements et de propriété intellectuelle. M. Levy compte parmi ses clients le Business Roundtable's Task Force on International Trade and Investment, la Coalition of Service Industries/Financial Services Group; le Computer Systems Policy Project, le Intellectual Property Committee (IPC), qui a publié, en collaboration avec KEIDANREN et UNICE, "Basic Framework of GATT Provisions on Intellectual Property; Statement of Views of the European Japanese and United States Business Communities," et la International Investment Alliance, qui a publié récemment "A Negotiating Strategy and Framework for a GATT Agreement on Investment." En 1986, le *National Journal* a porté M. Levy sur sa liste des 150 représentants les plus influents du secteur privé à Washington.

Richard G. Lipsey

Richard G. Lipsey est actuellement professeur d'économie à l'Université Simon Fraser et poursuit des travaux à l'Institut canadien de recherches avancées, où il dirige des projets de recherche internationaux sur la croissance et les politiques économiques. M. Lipsey a obtenu un baccalauréat ès arts de l'UCB en 1951, une maitrise ès arts de l'Université de Toronto en 1953 et un doctorat de la London School of Economics en 1957. Il a dirigé le département d'économie de la London School of Economics, et le département d'économie de même que la faculté de sciences sociales de l'Université d'Essex, en Angleterre. Il a également séjourné dans plusieurs universités d'Angleterre, des États-Unis et aux Universités de Colombie-Britannique et de Victoria.

Conseiller principal en économie à l'Institut C.D. Howe de 1983 à 1989, il y a dirigé de nombreux projets de recherche et s'est occupé de la rédaction des publications *Inflation Monitor* and *Trade Monitor*. Il a également écrit des ouvrages sur les possibilités commerciales du Canada (en collaboration avec Murray Smith) et sur l'Accord de libre-échange entre le Canada et les États-Unis (en collaboration avec Robert York).

L'honourable Flora MacDonald

L'honorable Flora MacDonald a occupé trois postes ministériels durant ses 16 ans à titre de députée de la circonscription de Kingston and the Islands : Secrétaire d'État aux Affaires extérieures (1970-1980), Ministre de l'Emploi et de l'Immigration (1984-1986) et Ministre des Communications (1986-1988). Durant ses années dans l'opposition, elle a été successivement critique des Affaires indiennes et du Nord canadien, des Relations fédérales-provinciales, des Affaires extérieures, et de la Condition féminine. Née à North Sydney (Nouvelle-Écosse), où elle a fait ses études, Flora MacDonald est diplômée du Empire Business College. En 1972, elle est devenue la première femme à réussir le cours d'un an du Collège de la Défense nationale sur les études canadiennes et internationales. De 1957 à 1966, Mlle MacDonald a occupé le poste de directrice générale du bureau national du Parti progressite-conservateur.

Keith E. Maskus

M. Keith E. Maskus est agrégé en économie à l'Université du Colorado à Boulder et directeur du Centre Carl McGuire d'études internationales de cette université. Il était membre du corps professoral de l'université depuis 1981 lorsqu'il a reçu son doctorat en économie de l'Université du Michigan. M. Maskus a été chercheur invité à la *Federal Reserve Bank* de Kansas City et du Département d'État des États-Unis. Il a publié de nombreux articles sur l'établissement de modèles empiriques de théories en matière de commerce international et sur la politique commerciale des États-Unis.

Sylvia Ostry

Sylvia Ostry est présidente et chercheuse principale au Centre d'études en administration internationale de l'Université de Toronto, présidente du conseil national de l'Institut canadien des affaires internationales et coprésidente pour la région de l'Ouest de la Blue Ribbon Commission for Hungary's Economic Recovery. Elle détient un doctorat en économique de l'Université McGill et de l'Université de Cambridge. Après avoir donné des cours et effectué des recherches dans diverses universités canadiennes ainsi qu'à l'Institut de statistiques de l'Université d'Oxford Dr. Ostry rejoint le gouvernement fédéral en 1964. Elle y occupe successivement les postes de statisticienne en chef, de sous-ministre adjointe à Consommation et Corporations, de présidente du Conseil économique du Canada, de sous-ministre au Commerce extérieur, d'ambassadrice aux négociations commerciales multilatérales et de représentante personnelle du Premier ministre au Sommet économique. De 1979 à 1983, elle dirige le département d'économie et de statistique de l'OCDE à Paris. Ses plus récentes publications comprennent *International Economic Policy Coordination* (en collaboration avec Michael Artis), par Chatham House, 1986; *Interdependence: Vulnerability and Opportunity*, Per Jacobssen Lecture, 1987; "Regional Trading Blocs: Pragmatic or Problematic Policy?" (en collaboration avec Michael Aho), *The Global Economy: America's Role in the Decade Ahead*, American Assembly, 1989; *Governments and Corporations in the Shrinking World: The Search for Stability*, Council on Foreign Relations, New York, 1990.

Morris Rosenberg

Au moment de sa nomination à Consommation et Corporations Canada, M. Rosenberg était avocat général principal au ministère des Affaires extérieures et du commerce international depuis avril 1989. Auparavant, il était avocat général principal au Bureau des négociations commerciales. A ce titre, il a travaillé à la mise en oeuvre de l'Accord de libre-échange avec les États-Unis. M. Rosenberg a été avocat principal à Consommation et Corporations Canada de janvier 1986 à février 1988. Originaire de Montréal, M. Rosenberg détient un baccalauréat ès arts (B.A.) de l'Université McGill, une licence en droit (LL. L.) de l'Université de Montréal et une maitrise (LL. M.) de l'Université Harvard.

Hans Smit

Hans Smith occupe le poste de professeur de droit à la chaire Stanley H. Fuld et il est directeur de l'École de droit étranger et comparé Parker, à l'Université Columbia. Il est également professeur invité à l'Université de Paris I et de Paris II. Il a été rapporteur pour la Commission américaine sur les règlements internationaux en matière de procédure judiciaire, et il est membre des barreaux de New York et des Pays-Bas.

Murray G. Smith

Murray Smith occupe le poste de directeur du Centre de droit et de politique commerciale depuis le 1^er^ septembre 1990. Auparavant, Murray Smith était depuis juin 1987 directeur du Programme d'économie internationale de l'Institut de recherches politiques. Au cours des années antérieures, il oeuvra à l'Institut C.D. Howe où il assuma les fonctions d'analyste politique principal et de directeur canadien de la recherche au sein du Comité canado-américain. Lors des négociations multilatérales du Tokyo Round, il fut directeur des relations économiques internationales dans le gouvernement de la Colombie-Britannique. Il est l'auteur ou le coauteur de plusieurs livres et articles sur des questions relatives à l'économie internationale. M. Smith est également le coéditeur de *Assessing the Canada-U.S. Free Trade Agreement* et *The Canada-U.S. Free Trade Agreement: The Global Impact*. Sa plus récente publication est *Canada, the Pacific & Global Trade* qui fait le point sur le projet de coopération économique entre les pays du Pacifique à la lumière du marché unique de l'Europe de 1992 et des négociations multilatérales de l'Uruguay Round. M. Smith agit comme expert en matière de différends commerciaux, sous l'égide de l'Article 18 de l'Accord de libre-échange entre le Canada et les Etats-Unis.

J.H. Warren

Jack Hamilton (Jake) Warren est le conseiller principal en politique commerciale du gouvernement du Québec. M. Warren a fait une carrière remarquable dans la Fonction publique du Canada et a oeuvré dans le secteur privé. Il a d'abord représenté le Canada auprès de la plupart des grands organismes économiques internationaux : à titre d'administrateur suppléant du FMI et de la Banque mondiale au milieu des années cinquante, à titre de membre de la délégation permanente auprès de l'OTAN et de l'OCDE à la fin des années cinquante, et dans les négociations du GATT au début des années soixante (où il a été élu président des parties contractantes en 1962 et de nouveau en 1964). Il était sous-ministre du Commerce et, plus tard, de l'Industrie et du Commerce, de 1964 à 1971. M. Warren a été nommé haut commissaire au Royaume-Uni (1971-1974), ambassadeur aux États-Unis (1975-1977) et coordonnateur du Canada pour les Négociations commerciales multilatérales du Tokyo Round (1977-1979). De 1979 à 1986, il était vice-président de la Banque de Montréal. Il a fait ses études à l'Université Queen's et a servi à titre d'officier de marine dans la Deuxième Guerre mondiale. En 1975, M. Warren a reçu le Prix de grande distinction de la Fonction publique du Canada et a été nommé Officier de l'Ordre du Canada en juin 1982.

David B. Watters

David B. Watters est présentement directeur général de la révision législative, au sein de Consommation et Corporations Canada. A ce titre, il dirige une équipe d'économistes et d'avocats, lesquels conduisent, sous tous leurs aspects, et tant sur le plan interne que sur le plan interntional les programmes de politique et de révision en ce qui touche les quelques soixante-dix lois relatives à la consommation, aux corportions, et à la propriété intellectuelle dont le ministère est responsable. M. Watters agit également pour le Canada à titre de négociateur principal sur les aspects de la propriété intellectuelle qui touchent au commerce dans le cadre du Uruguay Round du GATT. Antérieurement à ses fonctions actuelles, il a occupé des postes importants auprès de plusieurs agences gouvernementales canadiennes. M. Watters détient un baccalauréat de l'Université Queen's à Kingston, en Ontario, de même qu'une licence en common law de cette même université.

Howard Wetston

Howard Wetston est Directeur des enquêtes et recherches au Bureau de la politique de concurrence depuis le 30 octobre 1989. Diplômé des universités Mount Allison et Dalhousie, M. Wetston est membre des barreaux de l'Ontario, de la Nouvelle-Ecosse et de l'Alberta. Il se joint au ministère de la Justice en 1976 comme procureur de la Couronne. De 1982 à 1985 il occupe divers postes tels avocat-conseil principal et directeur de programme des industries réglementées de l'Association des consommateurs du Canada, avocat-conseil général de la Commission canadienne des transports. Il effectue un retour au secteur privé chez Burnet, Duckwork & Palmer (Calgary) et Phillips & Vinebert (Montréal) dans le domaine du droit administratif, plus particulièrement la réglementation de l'économie et représente des clients devant les tribunaux et conseils de réglementation. Il est aussi professeur auxiliaire à la faculté de droit de l'université d'Ottawa.

Bunroku Yoshino

L'ambassadeur Bunroku Yoshino est président du conseil d'administration de l'Institut d'études économiques internationales de Tokyo depuis 1985. Il a été tour à tour : conseiller spécial auprès du ministère des Affaires extérieures; conseiller spécial auprès du président de KEIDANREN; président de l'Institut d'études économiques internationales de Tokyo, 1983; représentant du gouvernement du Japon lors de la rencontre des ministres dans le cadre du GATT, Genève, 1982; ambassadeur extraordinaire et plénipotentiaire auprès de la République fédérale allemande, 1977; ministre adjoint aux Affaires étrangères, 1975; ambassadeur extraordinaire et plénipotentiaire, délégation permanente du Japon auprès de l'OCDE, 1972; directeur général du Bureau des affaires américaines, ministère des Affaires étrangères, 1971; envoyé extraordinaire et ministre plénipotentiaire auprès des États-Unis d'Amérique, 1968.

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- encourage le débat impartial et la critique de questions de politique d'État, de manière à provoquer la participation de tous les secteurs et de toutes les régions de la société canadienne, et établit la liaison entre la recherche et les mécanismes d'apprentissage social et d'élaboration de politiques.

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Edited by
Murray G. Smith

Apart from heated controversies over pharmaceutical patents or copyright legislation, Canadians have paid little attention to intellectual property issues. Yet the legislative framework for intellectual property rights has pervasive implications for modern economies. The domestic agenda for the evolution of intellectual property rights in Canada will be shaped by international developments including the outcome of the Uruguay Round of GATT negotiations. If the Uruguay Round succeeds, then Canada will need to decide whether it can agree to new international rules for protection of intellectual property. If the Uruguay Round fails, Canada could face mounting unilateral pressures to alter intellectual property laws and Canadian exporters could face trade actions alleging infringement of United States intellectual property rights. Whatever the outcome of the GATT negotiations, decisions about Canada's intellectual property regime could play a significant role in shaping corporate strategies and in influencing the technological dynamism of, and economic growth prospects for, the Canadian economy.

This volume examines the interaction between public policy choices and private sector strategies for intellectual property in a volatile international environment.

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